JOHNSEN'S R-407C REFRIGERANT 25 POUND CYLINDER

Safety Data Sheet

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

Revision date: : Version: 1.1

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

1.1. Product identifier

Product form : Mixture

Trade name : JOHNSEN'S R-407C REFRIGERANT 25 POUND CYLINDER

Product code : 6407C

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

Use of the substance/mixture : Refrigerant Gas

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

GHS-US classification

Liquefied gas H280

Full text of H statements : see section 16

2.2. Label elements

GHS-US labelling

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. May Cause frostbite in contact with skin. Intentional misuse and inhalation abuse may cause cardiac or central nervous systems effects. Warning. 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. . None under normal conditions.

2.4. Unknown acute toxicity (GHS US)

No data available

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	%	GHS-US classification
1,1,1,2-Tetrafluoroethane	(CAS No) 811-97-2	50 - 70	Liquefied gas, H280
Pentafluoroethane	(CAS No) 354-33-6	10 - 30	Liquefied gas, H280
Difluoromethane	(CAS No) 75-10-5	10 - 30	Flam. Gas 1, H220 Liquefied gas, H280

The exact percentage is a trade secret.

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. Do not apply (chemical) neutralizing agents. 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 after inhalation : EXPOSURE TO HIGH CONCENTRATIONS: Feeling of weakness. Central nervous system depression. Headache. Nausea. Dizziness. Mental confusion. Coordination disorders. Accelerated heart action. Disturbances of heart rate. Disturbances of consciousness. Respiratory difficulties.

Symptoms/injuries after skin contact : Dry skin. Frostbites.

Symptoms/injuries after eye contact : Frostbites.

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 : Foam. Dry powder. Carbon dioxide. Water spray. Sand.

Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

No additional information available

5.3. Advice for firefighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

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.

6.1.1. For non-emergency personnel

Protective equipment : Gloves. Safety glasses.

Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection.

Emergency procedures : Ventilate area.

6.2. Environmental precautions

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 : Store away from other materials.

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	:	Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapour.
Hygiene measures	:	Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Wash affected areas thoroughly after handling. Do not eat, drink or smoke when using this product. Wash contaminated clothing before reuse. Always wash hands after handling the product. Remove contaminated clothes. Separate working clothes from town clothes. Launder separately.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures	:	Comply with applicable regulations.
Incompatible materials	:	Direct sunlight.
Storage temperature	:	< 52 °C
Heat and ignition sources	:	KEEP SUBSTANCE AWAY FROM: heat sources.
Storage area	:	Store in a cool area. Keep out of direct sunlight. Ventilation at floor level. Aboveground. Meet the legal requirements. Store in a well-ventilated place.
Special rules on packaging	:	SPECIAL REQUIREMENTS: with pressure relief valve. clean. correctly labelled. meet the legal requirements.
Packaging materials	:	SUITABLE MATERIAL: No data available. MATERIAL TO AVOID: No data available.

7.3. Specific end use(s)

Follow Label Directions.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.2. Exposure controls

Appropriate engineering controls	:	Local exhaust venilation, vent hoods . Ensure good ventilation of the work station.
Personal protective equipment	:	Avoid all unnecessary exposure. Gloves. Safety glasses.

Materials for protective clothing	:	GIVE EXCELLENT RESISTANCE:
Hand protection	:	Wear protective gloves.
Eye protection	:	Chemical goggles or safety glasses.
Skin and body protection	:	Wear suitable protective clothing.
Respiratory protection	:	Wear appropriate mask.
Consumer exposure controls	:	Avoid contact during pregnancy/while nursing.
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	:	86.2 g/mol
Colour	:	Colourless.
Odour	:	Faint Ethereal Odor.
Odour threshold	:	No data available
pH	:	Neutral
Relative evaporation rate (butylacetate=1)	:	No data available
Melting point	:	No data available
Freezing point	:	No data available
Boiling point	:	-43 °C
Flash point	:	N/A
Auto-ignition temperature	:	No data available
Decomposition temperature	:	> 250 °C
Flammability (solid, gas)	:	No data available
Vapour pressure	:	No data available

Relative vapour density at 20 °C	:	No data available
Relative density	:	1.16 @ 21.1 deg C
Solubility	:	No data available
Log Pow	:	No data available
Log Kow	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosive properties	:	No data available
Oxidising properties	:	No data available
Explosive limits	:	No data available

9.2. Other information

VOC content	:	100 % VOC Exempt
Gas group	:	Liquefied gas

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Not established.

10.3. Possibility of hazardous reactions

Not established.

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 as hazardous

Pentafluoroethane (354-33-6)	
LC50 inhalation rat (mg/l)	2910 mg/l/4h (Rat)

Difluoromethane (75-10-5)	
LC50 inhalation rat (mg/l)	1890 mg/l/4h (Rat)

1,1,1,2-Tetrafluoroethane (811-97-2)	
LC50 inhalation rat (mg/l)	> 2000 mg/l/4h (Rat; Literature study)
LC50 inhalation rat (ppm)	> 359300 ppm/4h (Rat; Literature study)

Skin corrosion/irritation	:	Not classified as hazardous pH: Neutral
Serious eye damage/irritation	:	Not classified as hazardous pH: Neutral
Respiratory or skin sensitisation	:	Not classified as hazardous
Germ cell mutagenicity	:	Not classified as hazardous Based on available data, the classification criteria are not met
Carcinogenicity	:	Not classified as hazardous
Reproductive toxicity	:	Not classified as hazardous
Specific target organ toxicity (single exposure)	:	Not classified as hazardous
Specific target organ toxicity (repeated exposure)	:	Not classified as hazardous
Aspiration hazard	:	Not classified as hazardous
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: Feeling of weakness. Central nervous system depression. Headache. Nausea. Dizziness. Mental confusion. Coordination disorders. Accelerated heart action. Disturbances of heart rate. Disturbances of consciousness. Respiratory difficulties.

Symptoms/injuries after skin contact : Dry skin. Frostbites.

Symptoms/injuries after eye contact : Frostbites.

SECTION 12: Ecological information

12.1. Toxicity

1,1,1,2-Tetrafluoroethane (811-97-2)	
LC50 fish 1	450 mg/l (LC50; 96 h)
EC50 Daphnia 1	980 mg/l (EC50; 48 h)

12.2. Persistence and degradability

JOHNSEN'S R-407C REFRIGERANT 25 POUND CYLINDER	
Persistence and degradability	Not established.

Pentafluoroethane (354-33-6)	
Persistence and degradability	Not readily biodegradable in water.

Difluoromethane (75-10-5)	
Persistence and degradability	Not readily biodegradable in water.

1,1,1,2-Tetrafluoroethane (811-97-2)	
Persistence and degradability	Not readily biodegradable in water.

12.3. Bioaccumulative potential

JOHNSEN'S R-407C REFRIGERANT 25 POUND CYLINDER	
Bioaccumulative potential	Not established.

Pentafluoroethane (354-33-6)	
Log Pow	1.48
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).

Difluoromethane (75-10-5)	
Log Pow	0.21
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).

1,1,1,2-Tetrafluoroethane (811-97-2)	
BCF other aquatic organisms 1	5 - 58 (BCF)
Log Pow	1.06 (OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).

12.4. Mobility in soil

No additional information available

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.

SECTION 14: Transport information

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

US DOT (ground):	UN3340, Refrigerant gas R 407C (Pentafluoroethane, Difluoromethane, 1,1,1,2-Tetrafluoroethane), 2.2
ICAO/IATA (air):	UN3340, Refrigerant gas R 407C (Pentafluoroethane, Difluoromethane, 1,1,1,2-Tetrafluoroethane), 2.2
IMO/IMDG (water):	UN3340, Refrigerant gas R 407C (Pentafluoroethane, Difluoromethane, 1,1,1,2-Tetrafluoroethane), 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)	:	Refrigerant gas R 407C (Pentafluoroethane, Difluoromethane, 1,1,1,2-Tetrafluoroethane)
Class (DOT)	:	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

Emergency Response Guide (ERG) Number	:	126
Other information	:	No supplementary information available.

Overland transport

No additional information available

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

Air transport

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	:	75 kg
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	:	150 kg

SECTION 15: Regulatory information

15.1. US Federal regulations

JOHNSEN'S R-407C REFRIGERANT 25 POUND CYLINDER	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Sudden release of pressure hazard

Difluoromethane (75-10-5)	
SARA Section 311/312 Hazard Classes	Sudden release of pressure hazard Fire hazard Immediate (acute) health hazard

1,1,1,2-Tetrafluoroethane (811-97-2)	
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

15.2. International regulations

CANADA

JOHNSEN'S R-407C REFRIGERANT 25 POUND CYLINDER	
Listed on the Canadian DSL (Domestic Substances List)	
WHMIS Classification	Class A - Compressed Gas

1,1,1,2-Tetrafluoroethane (811-97-2)	
WHMIS Classification	Class A - Compressed Gas

EU-Regulations

No additional information available

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

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

F+; R12

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-407C REFRIGERANT 25 POUND CYLINDER	
U.S. - California - Proposition 65 - Carcinogens List	No
U.S. - California - Proposition 65 - Developmental Toxicity	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Female	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No

Pentafluoroethane (354-33-6)				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	Non-significant risk level (NSRL)
No	No	No	No	

Difluoromethane (75-10-5)				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	Non-significant risk level (NSRL)
No	No	No	No	

1,1,1,2-Tetrafluoroethane (811-97-2)				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	Non-significant risk level (NSRL)
No	No	No	No	

SECTION 16: Other information

Indication of changes : Revision - See : *.

Other information : None.

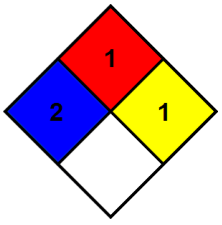
Full text of H-statements:

H220	Extremely flammable gas
H280	Contains gas under pressure; may explode if heated

NFPA health hazard : 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.

NFPA fire hazard : 1 - Must be preheated before ignition can occur.

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	: 1 Slight Hazard
Physical	: 1 Slight Hazard
Personal Protection	: B

SDS US (GHS HazCom 2012) - TCC

The Supplier identified in Section 1 of this SDS 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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