	<b>SAFETY DATASHEET</b>	Page : 1/10
		Revised edition n° : 10.0
		Revision date : 09/2018
<b>R407A</b>		<b>MTG---</b>

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

### 1.1. Product identifier

Trade name	R407A
Chemical description	Refrigerant mixture HFC (Difluoromethane, Pentafluoroethane, 1,1,1,2-Tetrafluoroethane)
CAS N°	--
CE N°	--
Index N°	--
Registration n°	--
Chemical formula	(CH <sub>2</sub> F <sub>2</sub> , C <sub>2</sub> HF <sub>5</sub> , CH <sub>2</sub> FCF <sub>3</sub> )

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

Relevant identified uses	Industrial and professional Test gas/Calibration gas Use for manufacture of electronic/photovoltaic components Use as refrigerant Laboratory use Contact supplier for more information on uses
Uses advised against	Consumer use not recommended

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

Company identification	MULTIGAS Route de l'Industrie 102 CH-1564 Domdidier
Phone number	+41 (0) 26 676 94 94
E-mail address	<a href="mailto:info@multigas.ch">info@multigas.ch</a>

### 1.4. Emergency telephone numbers

145 (Toxicology Centre Zurich) or +41 (0) 44 251 51 51  
+41 (0) 26 676 94 94 (Multigas)


## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

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

**Physical hazards** Gases under pressure : Liquefied gas

H280

	<b>SAFETY DATASHEET</b>	Page : 2/10
		Revised edition n° : 10.0
		Revision date : 09/2018
<b>R407A</b>		<b>MTG---</b>

For the complete H-sentences texts mentioned in that chapter, refer to Section 16

## 2.2. Label elements

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

### Hazard pictograms



GHS04

### Signal word

Warning

### Hazard statements

H280 Contains gas under pressure; may explode if heated

### Precautionary statements

P410+403 Protect from sunlight. Store in a well-ventilated place

## 2.3. Other hazards

None


## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Name	Product identifier	Concentration	Classification
Pentafluoroethane (R 125)	(CAS-No.) 354-33-6 (EC-No.) 206-557-8 (EC Index-No.) --- (Registration-No.) 01-2119485636-25	38 - 42 %	Press. Gas (Liq.), H280
1,1,1,2-Tetrafluoroethane (R 134A)	(CAS-No.) 811-97-2 (EC-No.) 212-377-0 (EC Index-No.) --- (Registration-No.) 01-2119459374-33	38 - 42 %	Press. Gas (Liq.), H280
Difluoromethane (R32)	(CAS-No.) 75-10-5 (EC-No.) 200-839-4 (EC Index-No.) --- (Registration-No.) 01-2119471312-47	18 – 22%	Flam. Gas 1 H220 Press. Gas (Liq.) H280

For the complete H-sentences texts mentioned in that chapter, refer to Section 16

Contains no other components or impurities which will influence the classification of the product

	<b>SAFETY DATASHEET</b>	Page : 3/10
		Revised edition n° : 10.0
		Revision date : 09/2018
<b>R407A</b>		<b>MTG---</b>

### 3.2. Mixtures

Not established

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

<b>General advice</b>	See a doctor. Show this safety data sheet to the attending physician
<b>In case of inhalation</b>	In case of inhalation, remove the person from the contaminated area. In case of respiratory arrest, give artificial respiration. See a doctor
<b>In case of skin contact</b>	No adverse effects expected
<b>In case of eyes contact</b>	Immediate washing, abundant and prolonged with water. If irritation persists, consult a doctor
<b>In case of ingestion</b>	Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. See a doctor

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

Refer to section 11

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

Do not give adrenaline or similar drugs

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media


<b>Suitable extinguishing media</b>	Water spray or water mist. Dry powder. Carbon dioxide. Foam
<b>Unsuitable extinguishing media</b>	Do not use water jet to extinguish

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

<b>Specific hazards</b>	In case of fire or excessive heat, hazardous combustion products may be produced Exposure to fire may cause containers to rupture/explode
<b>Hazardous combustion products</b>	In case of fire or excessive heat, hazardous combustion products may be produced such as : carbonyl fluoride, carbon monoxide, hydrogen fluoride

### 5.3. Additional information

Cool endangered receptacles with water spray jet from a protected position

	<b>SAFETY DATASHEET</b>	Page : 4/10
		Revised edition n° : 10.0
		Revision date : 09/2018
<b>R407A</b>		<b>MTG---</b>

**SECTION 6: Accidental release measures**

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

Avoid breathing vapours, spray mists or gases  
 Provide adequate ventilation  
 Evacuate personnel to a safe place  
 Personal protective equipment, see section 8

**6.2. Environmental precautions**

-

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

Ventilate the area

**6.4. Reference to other sections**

See also sections 8 and 13

**SECTION 7: Handling and storage**

**7.1. Precautions for safe handling**

For precautions, see section 2.2

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

Store in a cool place. Keep container tightly closed in a dry and well-ventilated place  
 Content under pressure

**7.3. Specific end use(s)**


None

**SECTION 8: Exposure controls/personal protection**

**8.1. Control parameters**

Components with occupational exposure limits

Component	CAS N°	Exposure value type	Control parameter	Source
Pentafluoroethane	354-33-6	TWA	-	No occupational exposure limit value
			-	
		OEL		

	<b>SAFETY DATASHEET</b>	Page : 5/10
		Revised edition n° : 10.0
		Revision date : 09/2018
<b>R407A</b>		<b>MTG---</b>

1,1,1,2-Tetrafluoroethane	811-97-2	TWA	1000 ppm	SUVA: Limit values of exposure to workstations
			4 240 mg/m <sup>3</sup>	
		OEL		SUVA: Limit values of exposure to workstations
Difluoromethane (R32)	75-10-5	TWA	-	No occupational exposure limit value
			-	
		OEL		

## 8.2. Exposure controls

### 8.2.1. Appropriate engineering controls

Provide adequate general and local exhaust ventilation  
Gas detectors should be used when flammable / toxic gases / vapours are likely to be released

### 8.2.2. Individual protection measures, e.g. personal protective equipment

#### Eye/face protection

Wear goggles and a face shield when transfilling or breaking transfer connections. Standard EN 166

#### Skin / hand protection

Wear protective gloves when handling gas cylinders  
The selected protective gloves have to satisfy the specifications of EU Directive 89/686 / EEC and the standard EN 374 derived from it

##### **For short-term use**

Material: Fluoroelastomer  
Penetration time:> 480 min  
Glove thickness: 0.7 mm

##### **For long-term use**

Material: Fluoroelastomer  
Penetration time:> 480 min  
Glove thickness: 0.7 mm

Have appropriate, chemical-resistant protective clothing ready for use in emergencies

#### Respiratory protection

Self-contained breathing apparatus (SCBA) or positive pressure air mask must be used in oxygenated atmospheres. Standard EN 137 - Self-contained compressed air device with a full face mask

### 8.2.3. Environmental exposure controls

-

**R407A**
**MTG---**
**SECTION 9: Physical and chemical properties**
**9.1. Information on basic physical and chemical properties**
**Appearance**


• Physical state at 20°C / 101.3kPa	Gas
• Colour	Colourless
Odour	No data available
Odour threshold	No data available
pH	No data available
Melting point / Freezing point	No data available
Boiling point	-45.5°C to -38.9°C
Flash point	No data available
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Explosive limits	No data available
Vapour pressure [20°C]	11 bar
Vapour pressure [50°C]	23.2 bar
Vapour density	No data available
Relative density, liquid (water=1)	1.17
Relative density, gas (air=1)	3
Water solubility	No data available
Partition coefficient n-octanol/water (Log Kow)	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available
Explosive properties	No data available
Oxidising properties	No data available

**9.2. Other information**

Molar mass	90.1 g/mol
Critical temperature [°C]	82°C
Relative vapour density	Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level

**SECTION 10: Stability and reactivity**
**10.1. Reactivity**

No reactivity hazard other than the effects described in sub-sections below

	<b>SAFETY DATASHEET</b>	Page : 7/10
		Revised edition n° : 10.0
		Revision date : 09/2018
<b>R407A</b>		<b>MTG---</b>

### **10.2. Chemical stability**

Stable under recommended storage conditions

### **10.3. Possibility of hazardous reactions**

No data available

### **10.4. Conditions to avoid**

Avoid moisture in installation systems

### **10.5. Incompatible materials**

Alkaline and alkaline earth metals, strong oxidizers, finely divided metals  
For additional information on compatibility refer to ISO 11114

### **10.6. Hazardous decomposition products**

Under normal conditions of storage and use, hazardous decomposition products should not be produced

## **SECTION 11: Toxicological information**

### **11.1. Chemical safety assessment**

<b>Acute toxicity</b>	Not harmful by inhalation
<b>Skin corrosion/irritation</b>	No data available
<b>Serious eye damage/irritation</b>	No data available
<b>Respiratory or skin sensitisation</b>	No data available
<b>Germ cell mutagenicity</b>	No data available
<b>Carcinogenicity</b>	No data available
<b>Reproductive toxicity</b>	No data available
<b>STOT-single exposure – Target organ(s)</b>	No data available
<b>STOT-repeated exposure</b>	No data available
<b>Ingestion hazard</b>	No data available


## **SECTION 12: Ecological information**

### **12.1. Toxicity**

<b>Assessment</b>	Not very harmful for fish
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### **12.2. Persistence and degradability**

No data available

	<b>SAFETY DATASHEET</b>	Page : 8/10
		Revised edition n° : 10.0
		Revision date : 09/2018
<b>R407A</b>		<b>MTG---</b>

### 12.3. Bioaccumulative potential

No data available

### 12.4. Mobility in soil

No data available

### 12.5. Results of PBT and vPvB assessment

PBT / vPvB assessment is not available because the chemical safety assessment is not required / is not conducted

### 12.6. Other adverse effects

Contains fluorinated greenhouse gases  
When discharged in large quantities may contribute to the greenhouse effect

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

<b>Product</b>	<p>Must not be released into the atmosphere</p> <p>Burn in a chemical incinerator equipped with an afterburner and scrubber</p> <p>Return to the supplier the product not consumed in its original container</p>
<b>Contaminated container</b>	<p>Eliminate as unused product</p> <p>Contact the supplier if instructions are needed</p>
<b>OMoD Code</b>	<p>14 06 01</p> <p>Solvent, refrigerant and aerosol propellant or organic foam wastes: Chlorofluorocarbons, HCFCs, HFCs</p>

## SECTION 14: Transport information


### 14.1. UN number

Transport par road/rail ADR / RID	Transport by sea IMDG	Transport by air IATA
3338	3338	3338

### 14.2. UN proper shipping name

Transport par road/rail ADR / RID	Transport by sea IMDG	Transport by air IATA
Refrigerant gas R 407A	Refrigerant gas R 407A	Refrigerant gas R 407A



	<b>SAFETY DATASHEET</b>	Page : 9/10
		Revised edition n° : 10.0
		Revision date : 09/2018
<b>R407A</b>		<b>MTG---</b>

**14.3. Transport hazard class(es)**

Labelling



ADR/RID  
IMDG  
IATA

2.2 : Non-flammable, non-toxic gases

**14.4. Packing group**

ADR/RID  
IMDG  
IATA

Not established

**14.5. Environmental hazards**

ADR/RID

None

IMDG

None

ICAO-TI / IATA-DGR

None

**14.6. Special precautions for user**

No data available

**14.7. Transport in bulk according to Annex II of Marpol and the IBC Code**

Not applicable

**SECTION 15: Regulatory information**

**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**

This safety data sheet complies with the requirements of Regulation (CE) No. 1907/2006

**15.2. Chemical safety assessment**

A CSA has not been made yet


**SECTION 16: Other information**

Indication of changes

Revised safety data sheet in accordance with commission regulation (EU) No 2015/830

Abbreviations and acronyms

ADR : European Agreement concerning the International Carriage of Dangerous Goods by Road  
CAS : Chemical Abstract Service number (USA)

	<b>SAFETY DATASHEET</b>	Page : 10/10
		Revised edition n° : 10.0
		Revision date : 09/2018
<b>R407A</b>		<b>MTG---</b>

CLP :	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
CSA :	Chemical Safety Assessment
EIGA :	European Industrial Gases Association
EINECS :	European Inventory of Existing Commercial Chemical Substances
EN :	European Standard
ATE :	Acute Toxicity Estimate
IATA :	International Air Transport Association
IMDG Code :	International Maritime Dangerous Goods Code
LC50 :	Lethal Concentration to 50 % of a test population
OMoD :	Swiss Ordinance on the movement of waste
PBT :	Persistent, Bioaccumulative and Toxic
PPE:	Personal Protection Equipment
REACH :	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
RID :	Regulations concerning the international carriage of dangerous goods by rail
RMM :	Risk Management Measures
STOT-SE :	Specific Target Organ Toxicity - Single Exposure
UN :	United Nations
vPvB :	Very Persistent and Very Bioaccumulative
WGK:	Water Hazards Class

### Full text of H, EUH and P statements used in sections 2 and 3

#### Hazard statements

H280                      Contains gas under pressure; may explode if heated

#### Precautionary statements

P410+403                Protect from sunlight. Store in a well-ventilated place

#### Disclaimer of liability

Details given in this document have been prepared based on the most available reliable documents and are believed to be correct at the time of going to press  
They do not claim to be exhaustive and should be considered as a guide