

MATERIAL SAFETY DATA SHEET

R407C

DATE: April 2017

1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT IDENTIFICATION

Product Name R407 C
Trade Name R407C

2 COMPOSITION/INFORMATION ON INGREDIENTS

Chemical characterization Chemical Family Chlorofluorocarbon

Cas No. 158675-78-6

UN No. 3340

Mixture, based on:

PENTAFLUOROETHANE (R 125) (25 %)

ETHANE, 1,1,1,2-TETRAFLUORO- (R 134a) (52 %)

DIFLUOROMETHANE (R 32) (23 %)

Risk phrases: R 12 (Difluoromethane)

Symbols: F+ (Difluoromethane)

3 HAZARDS IDENTIFICATION

Advice on critical hazards to man and the environment:

Thermal decomposition giving toxic and corrosive products

4 FIRST AID MEASURES

If inhaled 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.

On skin contact: Flush area with lukewarm water. Do not use hot water. If frostbite has occurred, call a physician.

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

On ingestion: Not a probable route. However, in case of accidental ingestion, call a physician.

Further medical treatment: 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.

5 FIRE FIGHTING MASURES

Suitable extinguishing media: As appropriate for combustibles in area.

Special protective equipment: Wear a self-contained breathing

apparatus and protective suit.
Further information: Cool cylinder with water spray or fog. Self-contained breathing apparatus (SCBA) is required if cylinders rupture and contents are released under fire conditions. Water runoff should be contained and neutralized prior to release.

6 ACCIDENTAL RELEASE MEASURES

Personal precautions: Use self-contained breathing apparatus for large spills or releases.

Environmental precautions: Minimize at much as possible discharge into the environment.

Methods for cleaning up: Ventilate area, especially low or enclosed places where heavy vapours might collect. Remove open flames.

7 HANDLING AND STORAGE

Handling: Avoid breathing vapor. Avoid liquid contact with eyes and skin. Use with sufficient ventilation to keep employee exposure below recommended limits. Contact with chlorine or other strong oxidizing agents should also be avoided. See Fire and Explosion Data section.

Storage: Clean, dry area. Do not heat above 50 ° C.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls: Avoid breathing vapours. Avoid contact with skin or eyes. Use with sufficient ventilation to keep employee exposure below the recommended exposure limit. Local exhaust should be used if large amounts are released. Mechanical ventilation should be used in low or enclosed places.

Personal protective equipment: Impervious gloves should be used to avoid prolonged or repeated exposure. Chemical splash goggles should be available for use as needed to prevent eye contact. Under normal manufacturing conditions, no respiratory protection is required when using this product. Self-contained breathing apparatus is required if a large release occurs.

9 PHYSICAL AND CHEMICAL PROPERTIES

Form: Liquefied gas

Colour: Colourless

Odour: Slightly ether-like

Change of physical state:	Melting point/ melting range: -100 ° C
Boiling point/ boiling range:	-44 to -37 ° C
Ignition temperature:	none
Vapour pressure :	(20 ° C) 10350 hPa (50 ° C) 21940 hPa (70 ° C) 33610 hPa
Density:	(20 ° C) 1.17 g/cm
Relative density	3.59 (air=1)
pH value in aqueous solution	neutral
Octanol/water partition coefficient (log poW)	0.21 log poW (in n-octanole/ water) (R 32) 1.48 log poW (in n-octanole/ water) (R 125) 1.06 log poW (in n-octanole/ water) (R 134 a)

10 STABILITY AND REACTIVITY

Conditions to avoid:	Avoid contact with flames and red hot metallic surfaces.
Hazardous decomposition products:	Thermal decomposition into toxic products containing fluorine. Hydrogen fluoride (hydrofluoric acid). Carbon oxides.
Further information:	The product is stable under normal handling and storage conditions.

11 TOXICOLOGICAL INFORMATION

Acute toxicity	Inhalation: R 134a, R 32, R 125 practically not harmful by inhalation. No mortality in rat at 500 000 ppm / 4h As with other volatile aliphatic halogenated compounds, through vapour accumulation and/or inhalation of large quantities, the product can cause loss of consciousness and cardiac disorders aggravated by stress and lack of oxygen; risk of mortality Skin contact: In case of contact with liquefied gas: frostbite possible
Chronic toxicity	R 134a, R 32, R 125: studies of prolonged inhalation in animals have not shown sub-chronic toxic effects. (rat/ 3 months/ Inhalation: 50 000 ppm)

Specific effects	Genotoxicity: R 134a, R 32, R 125: according to available experimental data not genotoxic Carcinogenicity: R 134a Experimentation on animals has not shown clear evidence carcinogenic effects (rat/ inhalation – oral route) Reproductive toxicity: foetal development: R 134a, R 32, R 125: according to available experimental data: absence of toxic effects for foetal development (Inhalation/ rat – rabbit) Fertility: According to limited available data in animals: R 134a Absence of toxic effects on fertility (mouse/ inhalation)
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12 ECOLOGICAL INFORMATION

Ecotoxicological information:

R 134a	48-hour EC50, daphnia magna: 980 mg/L 96-hour LC50, rainbow trout: 450 mg/L.
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13 DISPOSAL CONSIDERATIONS

Product:	Recycle or incinerate at an approved waste disposal site only.
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14 TRANSPORT INFORMATION

Proper shipping name	Refrigerant gas R407C
Hazard class	2.2
UN No.	3340
Labelling	Non flammable gas

15 REGULATORY INFORMATION

EC classification: Not classified as dangerous

16 OTHER INFORMATION

Ensure all national/ local regulations are observed.
Ensure operators understand the asphyxiation hazard. Users of breathing apparatus must be trained. Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.

Details given in this document are believed to be correct at the time of going to press. Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted.