BOC GASES

Safety Data Sheet

1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY

Product name	R407A
Company identification	see heading and/or footer
Emergency phone numbers	see heading and/or footer

2 COMPOSITION/INFORMATION ON INGREDIENTS

Substance/Preparation	Preparation
Components/Impurities	Contains the following components: 20% w/w Difluoromethane (R32) {F+;R12}/40% w/w Pentafluoroethane (R125)/40% w/w 1,1,1,2-Tetrafluoroethane (R134a)
EEC Nr (from EINECS)	Not applicable for preparations

3 HAZARDS IDENTIFICATION

Hazards identification	Contact with product may cause cold burns or frostbite. In high concentrations may cause asphyxiation. Liquefied gas

4 FIRST AID MEASURES

Inhalation	In low concentrations may cause narcotic effects. Symptoms may include dizziness, headache, nausea and loss of co-ordination. In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.
Skin/eye contact	In case of frostbite spray with water for at least 15 minutes. Apply a sterile dressing. Immediately flush eyes thoroughly with water for at least 15 minutes. Obtain medical assistance
Ingestion	Ingestion is not considered a potential route of exposure.

5 FIRE FIGHTING MEASURES

Specific hazards	Exposure to fire may cause containers to rupture/explode. Non flammable
Hazardous combustion products	If involved in a fire the following toxic and/or corrosive fumes may be produced by thermal decomposition: Carbonyl fluoride

	Carbon monoxide
	Hydrogen fluoride
Suitable extinguishing media	All known extinguishants can be used.
Specific methods	If possible, stop flow of product.
	Move away from the container and cool with water from a protected position.
Special protective equipment for fire fighters	Use self-contained breathing apparatus and chemically protective clothing.

6 ACCIDENTAL RELEASE MEASURES

Personal precautions	Evacuate area.
	Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.
	Ensure adequate air ventilation.
Environmental precautions	Try to stop release.
	Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.
Clean up methods	Ventilate area.

7 HANDLING AND STORAGE

Handling and storage	Suck back of water into the container must be prevented.
	Do not allow backfeed into the container.
	Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt.
	Refer to supplier's container handling instructions.
	Keep container below 50°C in a well ventilated place.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limit value for country	UK: Difluoromethane - LTEL:1000ppm
	UK: Pentafluoroethane (R125) - LTEL: 1000ppm
	UK: 1,1,1,2-Tetrafluoroethane - LTEL: 1000ppm (EH40/2000)
Personal protection	Protect eyes, face and skin from liquid splashes.
	Do not smoke while handling product.
	Ensure adequate ventilation.

9 PHYSICAL AND CHEMICAL PROPERTIES

Molecular weight	90.1

Boiling point	-44.9 °C to -37.7 °C
Critical temperature	83.9 °C
Relative density, gas	3.1 (air=1)
Relative density, liquid	1.2 (water=1)
Vapour Pressure 20°C	9.4 bar(a).
Solubility mg/l water	Not known, but considered to have low solubility.
Appearance/Colour	Colourless gas
Odour	Ethereal
	Poor warning properties at low concentrations.
Other data	Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

10 STABILITY AND REACTIVITY

Stability and reactivity	Stable under normal conditions.
	Thermal decomposition yields toxic products which can be corrosive in the presence of moisture.

11 TOXICOLOGICAL INFORMATION

General	May produce irregular heart beat and nervous symptoms.

12 ECOLOGICAL INFORMATION

General	When discharged in large quantities may contribute to the greenhouse effect.
Global warming factor	1900 (CO2=1)

13 DISPOSAL CONSIDERATIONS

General	Avoid discharge to the environment.
	Do not discharge into any place where its accumulation could be dangerous.
	Refer to supplier's waste gas recovery programme.
	Contact supplier if guidance is required.

14 TRANSPORT INFORMATION

UN Nr	3338
Class/Div	2.2
ADR/RID Item Nr	2, 2°A
ADR/RID Hazard Nr	20
Labelling ADR	Label 2: non flammable non toxic gas

Other transport information	Avoid transport on vehicles where the load space is not separated from the driver's compartment. 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. - compliance with applicable regulations.

15 REGULATORY INFORMATION

Number in Annex I of Dir 67/548	Not applicable for preparations
EC Classification	Not classified as dangerous substance.
Labelling of cylinders	
-Symbols	Label 2: non flammable non toxic gas

16 OTHER INFORMATION

Ensure all national/local regulations are observed.

Asphyxiant in high concentrations.

Keep container in well ventilated place.

Do not breathe the gas.

The hazard of asphyxiation is often overlooked and must be stressed during operator training.

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.

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