BOC GASES

Safety Data Sheet

Product : **Trifluoromethane (R23)** Page :1/5

MSDS Nr : 300-00-0029BOC(A) Version : 1.05 Date : 02/09/2003

Replaces version dated : 23/06/1994

1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY

Product name	Trifluoromethane (R23)
Chemical formula	CHF3
Company identification	see heading and/or footer
Emergency phone numbers	see heading and/or footer

2 COMPOSITION/INFORMATION ON INGREDIENTS

Substance/Preparation	Substance.
Components/Impurities	Contains no other components or impurities which will influence the classification of the product.
CAS Nr	75-46-7
EC Nr (from EINECS)	200-872-4

3 HAZARDS IDENTIFICATION

Hazards identification	Liquefied gas In high concentrations may cause asphyxiation. Not classified as dangerous substance.

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: Trifluoromethane (R23) 1000ppm
Personal protection	Ensure adequate ventilation.
	Do not smoke while handling product.
	Protect eyes, face and skin from contact with product.

9 PHYSICAL AND CHEMICAL PROPERTIES

Molecular weight	70
Melting point	-155 °C

Boiling point	-82.2 °C
Critical temperature	25.6 °C
Relative density, gas	2.4 (air=1)
Relative density, liquid	0.88 (water=1)
Vapour Pressure 20°C	41.6 bar(a).
Solubility mg/l water	1080 mg/l
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.
	May react with aluminium.
	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	Not covered by the 'Montreal Protocol'.
	When discharged in large quantities may contribute to the greenhouse effect.
Global warming factor	12100 (CO_2=1)

13 DISPOSAL CONSIDERATIONS

General	Avoid discharge to atmosphere.
	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

Proper shipping name	Trifluoromethane (Refrigerant Gas R 23)
UN Nr	1984
Class	2

ADR/RID Classification code	2A
ADR/RID Hazard Nr	20
Packing group	None
Labelling ADR	Label 2.2: non flammable non toxic gas
IMDG EmS codes	2-09
IMDG Marine pollutant	No
IATA passenger packing instruction	200
IATA passenger max. quantity/pack	75kg
IATA cargo packing instruction	200
IATA cargo max. quantity/pack	150kg
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 included in Annex I.
EC Classification	Not classified as dangerous preparation.
EC Labelling (Symbols, R&S phrases)	No EC labelling required.
Labelling of cylinders	
-Symbols	Label 2.2: 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.

Contact with liquid may cause cold burns/frost bite.

Safety Data Sheet

This Safety Data Sheet has been established in accordance with the applicable European Directives and applies to all countries that have translated the Directives in their national laws.

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.

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