

# Safety Data Sheet

**Product :** 1-Chloro-1,1-difluoroethane (R142b)

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MSDS Nr : 308-00-2001BOC(A)

Version : 1

Date : 02/09/2003

## 1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY

Product name 1-Chloro-1,1-difluoroethane (R142b)  
Chemical formula C<sub>2</sub>H<sub>3</sub>ClF<sub>2</sub>  
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 75-68-3  
EC Nr (from EINECS) 200-891-8

## 3 HAZARDS IDENTIFICATION

Hazards identification Extremely flammable  
Dangerous for the ozone layer.  
Liquefied gas

## 4 FIRST AID MEASURES

Inhalation In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness.  
Victim may not be aware of asphyxiation.  
In low concentrations may cause narcotic effects. Symptoms may include dizziness, headache, nausea and loss of co-ordination.  
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.  
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

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	Phosgene
	Hydrogen chloride
	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. Do not extinguish a leaking gas flame unless absolutely necessary. Spontaneous/explosive re-ignition may occur. Extinguish any other fire.
Special protective equipment for fire fighters	Use self-contained breathing apparatus and chemically protective clothing.

## 6 ACCIDENTAL RELEASE MEASURES

Personal precautions	Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. Evacuate area. Ensure adequate air ventilation. Eliminate ignition sources.
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. Keep area evacuated and free from ignition sources until any spilled liquid has evaporated. (Ground free from frost).

## 7 HANDLING AND STORAGE

Handling and storage	Ensure equipment is adequately earthed. Suck back of water into the container must be prevented. Purge air from system before introducing gas. 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. Keep away from ignition sources (including static discharges). Segregate from oxidant gases and other oxidants in store. Refer to supplier's container handling instructions. Keep container below 50°C in a well ventilated place.
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## 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limit value for country	Germany: MAK: 1000 ppm France: VME: 1000 ppm
Personal protection	Ensure adequate ventilation. Do not smoke while handling product. Protect eyes, face and skin from liquid splashes.

## 9 PHYSICAL AND CHEMICAL PROPERTIES

Melting point	-131 °C
Boiling point	-9.6 °C
Critical temperature	137 °C
Relative density, gas	3.7 (air=1)
Relative density, liquid	1.2 (water=1)
Vapour Pressure 20°C	2.9 bar(a).
Solubility mg/l water	No reliable data available.
Appearance/Colour	Colourless gas
Odour	Ethereal Poor warning properties at low concentrations.
Flammability range	6.3-17.9 vol% in air.
Autoignition temperature	632 °C
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	Can form explosive mixture with air. May react violently with oxidants. Thermal decomposition yields toxic products which can be corrosive in the presence of moisture. May react with aluminium.
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## 11 TOXICOLOGICAL INFORMATION

General	May cause irritation to the respiratory tract.
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## 12 ECOLOGICAL INFORMATION

General	Covered by the 'Montreal Protocol'. May have damaging effect on ozone layer. When discharged in large quantities may contribute to the greenhouse effect.
Ozone depletion factor	0.065 (R11=1)
Global warming factor	2000 (CO2=1)

## 13 DISPOSAL CONSIDERATIONS

General	Must not be discharged to atmosphere. Do not discharge into areas where there is a risk of forming an explosive mixture with air. Waste gas should be flared through a suitable burner with flash back arrestor. Toxic and corrosive gases formed during combustion should be scrubbed before 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.
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## 14 TRANSPORT INFORMATION

Proper shipping name	1-Chloro-1,1-difluoroethane (Refrigerant Gas R 142b)
UN Nr	2517
Class	2
ADR/RID Classification code	2F
ADR/RID Hazard Nr	23
Packing group	None
Labelling ADR	Label 2.1: flammable gas
IMDG EmS codes	2-07
IMDG Marine pollutant	No
IATA passenger packing instruction	Forbidden
IATA passenger max. quantity/pack	None
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.

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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

Proposed by the industry

F+;R12|N;R59

-Symbols

F+: Extremely flammable

N: Dangerous for the environment

Labelling of cylinders

-Symbols

Label 2.1: flammable gas

-Risk phrases

R12 Extremely flammable.

R59 Dangerous for the ozone layer.

-Safety phrases

S9 Keep container in well ventilated place.

S16 Keep away from ignition sources - No smoking.

S33 Take precautionary measures against static discharges.

S59 Refer to manufacturer/supplier for information on recovery/recycling

S61 Avoid release to the environment. Refer to special instructions/Safety data sheets.

## 16 OTHER INFORMATION

Ensure all national/local regulations are observed.

Ensure operators understand the flammability hazard.

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

Users of breathing apparatus must be trained.

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.

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