

SAFETY DATA SHEET

Based on Directive 91/155/EEC of the Commission of
the European Communities

R 134 a

1. Identification of the substance/preparation and the company

1.1 Identification of the substance or preparation:

Synonyms : R 134 a

CAS no. : 000811-97-2
EC index no. : N.A. NFPA code : 1-0-1
EINECS no. : 212-377-0 Molecular weight : 102.03
RTECS no. : N.A. Formula : C₂H₂F₄

1.2 Company/undertaking identification:

GASCO - Division of MEBROM NV
Assenedestraat 4
B - 9940 Ertvelde-Rieme-Belgium
Tel. : (+32) 9-341.97.77 - Fax. : (+32) 9-341.97.70

1.3 Telephone number for emergency:

See 1.2

2. Composition/information on ingredients

Hazardous ingredients	CAS no.	Conc in %	Hazard class.	Risks (R-phrases)
1,1,1,2-tetrafluorethane	000811-97-2	100	-	-

3. Hazards identification

- Liquefied gas
- May cause asphyxiation in high concentration

4. First aid measures

4.1 Eye contact:

- Rinse immediately with plenty of water for 15 minutes
- Do not apply neutralizing agents
- Consult a doctor/medical service if irritation persists

4.2 Skin contact:

- Wash immediately with lots of water and soap for 15 minutes
- Remove clothing while washing
- Do not remove clothing if it sticks to the skin
- Consult a doctor/medical service if irritation persists

4.3 After inhalation:

- Remove the victim into fresh air
- Unconscious: maintain adequate airway and respiration
- Consult a doctor/medical service if breathing problems develop

4.4 After ingestion:

- Not applicable

5. Fire-fighting measures**5.1 Suitable extinguishing media:**

- Non combustible
- For surrounding fires: all extinguishing media allowed

5.2 Unsuitable extinguishing media:

- No data available

5.3 Special exposure hazards:

- On heating/burning: release of toxic and corrosive gases/vapours e.g.: hydrofluoric acid and carbon oxides

5.4 Instructions:

- Cool tanks/drums with water spray/remove them into safety
- Dilute toxic gases with water spray
- Do not move the load if exposed to heat

5.5 Special protective equipment for firefighters:

- Heat/fire exposure: compressed air/oxygen apparatus and gas-tight suit

6. Accidental release measures**6.1 Personal protection:** see 8.3**6.2 Environmental precautions:**

- Pump over in suitable containers
- Plug the leak, cut off the supply
- Try to reduce evaporation
- Tip the container on one side to stop the leakage

6.3 Clean-up:

- Damaged/cooled tanks must be emptied
- Take collected spill to manufacturer/competent authority

7. Handling and storage**7.1 Handling:**

- Observe normal hygiene standards
- Handle and open the container with care

7.2 Storage:

- Ventilation at floor level
- Keep away from: heat sources, combustible materials, oxidizing agents

Storage temperature: < 40 °C

7.3 Materials for packaging:

- suitable : no data available
- to avoid : aluminium, zinc

8. Exposure controls/Personal protection

8.1 Recommended engineering controls:

- Measure the concentration in the air regularly
- Work under local exhaust/ventilation

Sampling methods:

- no data available

8.2 Exposure limits:

TLV value : not listed

8.3 Personal protection:

eye protection:

- Protective goggles

hand protection:

- Insulated gloves

skin protection:

- Protective clothing

materials for protective clothing:

- Neoprene
- PVA

respiratory protection:

- No data available

9. Physical and chemical properties

9.1 Appearance (at 20°C)	:	Gas	
9.2 Odour	:	Mild	
9.3 Colour	:	Colourless	
9.4 pH value	:	N.D.	
9.5 Boiling point/boiling range	:	-26.2	°C
9.6 Melting point/melting range	:	-101	°C
9.7 Flashpoint	:	N.A.	°C
9.8 Auto-ignition point	:	N.D.	°C
9.9 Explosion limits	:	N.D.	vol% (°C)
9.10 Vapour pressure (at 20°C)	:	5720	hPa
9.11 Relative density (at 20°C)	:	1.2	
9.12 Water solubility	:	0.19	g/100 ml
9.13 Soluble in	:	Ether	
9.14 Relative vapour density	:	N.D.	
9.15 Saturation concentration	:	N.D.	g/m ³
9.16 Viscosity	:	< 0.00022	Pa.s

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

- Stable under normal conditions

10.2 Reactivity/Hazardous decomposition products:

- On heating/burning: release of toxic and corrosive gases/vapours e.g.: hydrofluoric acid and carbonyl fluorid acid
- Reacts violently with (some) metal powders

10.3 Conditions/materials to avoid:

- Heat sources, combustible materials, oxidizing agents

11. Toxicological information**11.1 Acute toxicity:**

LD50 oral rat	: N.D.	mg/kg
LD50 dermal rat	: N.D.	mg/kg
LD50 dermal rabbit	: N.D.	mg/kg
LC50 inhalation rat	: > 2000	mg/l/4 h

11.2 Chronic toxicity:

EC carc. cat.: not listed
EC muta. cat.: not listed
EC repr. cat.: not listed

Carcinogenicity (TLV): not listed

IARC classification: not listed

11.3 Routes of exposure: inhalation, eyes and skin**11.4 Acute effects/symptoms:****AFTER INHALATION:**

- Non-toxic by inhalation (LC50 inh.,rat >50 mg/l/4h)
- Large spills/in enclosed spaces: risk of oxygen deficiency

EXPOSURE TO HIGH CONCENTRATIONS:

- Feeling of weakness
- CNS depression
- Dizziness
- Mental confusion
- Coordination disorders
- Disturbances of consciousness
- Accelerated heart action
- Disturbances of heart rate
- Respiratory difficulties

AFTER INGESTION:

- Toxicity data on ingestion: not applicable

AFTER SKIN CONTACT:

- Slightly irritant
- Dry skin
- Frostbites

AFTER EYE CONTACT:

- Slight irritation
- Inflammation/damage of the eye tissue

11.5 Chronic effects:

- No data available

12. Ecological information**12.1 Mobility:**

- Poorly soluble in water

12.2 Biodegradation:

- | | | | |
|---------|------------------|--------|-------------------------------|
| - soil: | T $\frac{1}{2}$ | : N.A. | days |
| | BOD ₅ | : N.D. | g O ₂ /g substance |
| | COD | : N.D. | g O ₂ /g substance |
- water:
 - Not readily biodegradable in water
 - test: 301D

12.3 Bioaccumulation:

- log P_{ow} : 1.06
- BCF : N.D.
- Slightly or not bioaccumulative

12.4 Aquatic toxicity:

- LC50 (96 h) : 450 mg/l (SALMO GAIIRDNERI/ONCORHYNCHUS MYKISS)
- EC50 (48 h) : 980 mg/l (DAPHNIA MAGNA)

12.5 Other information:

- WGK: N.D.
- Effect on the ozone layer : N.D.
- Waste water purification : N.D.

13. Waste disposal considerations**13.1 Product**

Offer remainders and non-recyclable solutions back to a company with a permit. In accordance with the local and national laws. Consult the producer/supplier for information about recovery/recycling.

13.2 Packing

Return empty packing to supplier

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14. Transport information

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3159

- 14.1 **Proper shipping name:** UN 3159, 1,1,1,2-Tetrafluoroethane (refrigerant gas R134a),2.2
- 14.2 **Transport by road/rail (ADR/RID):** class 2, 2 A
Danger code: 20
Danger labels on tanks: 2.2
on packages: 2.2
- 14.3 **Substance identification number (UN number):** 3159
Packing: -
- 14.4 **Maritime transport (IMDG code):** class 2,2A
Danger code: 20
Danger labels on tanks: 2.2
on packages: 2.2

15. Regulatory information

Labelling in accordance with EC directives 67/548/EEC and 1999/45/EEC

S 2: Keep out of reach of children

S 59: Refer at manufacturer/supplier for information on recovery/recycling

16. Other information

The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

N.A. = NOT APPLICABLE

N.D. = NOT DETERMINED

***** = INTERNAL CLASSIFICATION

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