

HFO-1234ze, HBA-1

Version 1.6

Revision Date 13.08.2008

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1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product information

Trade name : HFO-1234ze, HBA-1

Use of the Substance/Preparation : Aerosol propellant
Foam blowing agent
Refrigerant

Company/Undertaking Identification

Company : Honeywell Fluorine Products Europe B.V.
Laarderhoogtweg 18
1101 EA Amsterdam
Telephone : (31) 020 5656911
Telefax : (31) 020 5656600
Emergency telephone : (32) 14584545
For further information, please contact: : SafetyDataSheet@Honeywell.com

2. HAZARDS IDENTIFICATION

Risk advice to man and the environment

Not a hazardous substance or preparation according to EC-directives 67/548/EEC or 1999/45/EC.
Additional advice : Rapid evaporation of the liquid may cause frostbite.

See Section 11 for more detailed information on health effects and symptoms.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical characterization

Chemical Name : trans-1,3,3,3-Tetrafluoroprop-1-ene
CAS-No. : 1645-83-6
EC-No. : 471-480-0

Occupational Exposure Limit(s), if available, are listed in Section 8.

4. FIRST AID MEASURES

General advice : Show this safety data sheet to the doctor in attendance.
Keep warm and in a quiet place.
Inhalation : If inhaled, remove to fresh air.
Get medical attention if irritation develops and persists.
Skin contact : Rapid evaporation of the liquid may cause frostbite.
If there is evidence of frostbite, bathe (do not rub) with lukewarm (not hot) water. If water is not available, cover with a clean, soft cloth or similar covering.
Call a physician if irritation develops or persists.
Eye contact : If eye irritation persists, consult a specialist.

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Notes to physician

Symptoms : headache
Dizziness
Nausea
Palpitation
Respiratory disorders
Rapid respiration

See Section 11 for more detailed information on health effects and symptoms.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Water mist
Dry powder
Foam
Carbon dioxide (CO₂)

Specific hazards during fire fighting : Heating will cause pressure rise with risk of bursting
Some risk may be expected of corrosive and toxic decomposition products.
Fire may cause evolution of:
Hydrogen fluoride
However, this material can ignite when mixed with air under pressure and exposed to strong ignition sources.

Special protective equipment for fire-fighters : Wear self-contained breathing apparatus and protective suit.
Exposure to decomposition products may be a hazard to health.

Further information : In the event of fire, cool tanks with water spray.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions : Provide adequate ventilation.
Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.
Avoid skin contact with leaking liquid (danger of frostbite).
Use personal protective equipment.
Keep people away from and upwind of spill/leak.

Environmental precautions : Prevent further leakage or spillage if safe to do so.
The product evaporates readily.
Prevent spreading over a wide area (e.g. by containment or oil barriers).

Methods for cleaning up : Do not direct water spray at the point of leakage.
Allow to evaporate.

For personal protection see section 8.

7. HANDLING AND STORAGE

Handling

Advice on safe handling : Pressurized container: Protect from sunlight and do not expose to temperatures exceeding 50 °C. Do not pierce or burn, even after use.
Do not burn.

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Exhaust ventilation at the object is necessary.

Advice on protection against fire and explosion : Do not spray on a naked flame or any other incandescent material.
 Keep away from direct sunlight.
 Fire or intense heat may cause violent rupture of packages.
 Vapours may form explosive mixtures with air.
 The product is not easily combustible.

Storage

Further information on storage conditions : Keep containers tightly closed in a cool, well-ventilated place.
 Keep only in the original container at temperature not exceeding 50°C
 Keep away from direct sunlight.

Advice on common storage : Do not store together with:
 Oxidizing agents

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational exposure controls

Components	Basis	Value type	Control parameters	Exceeding Factor	Form of exposure	Remarks
trans-1,3,3,3-Tetrafluoropro p-1-ene	HONEYW ELL	Time Weighted Average (TWA):	1.000 ppm			We are not aware of any national exposure limit.

Engineering measures

Local exhaust

Personal protective equipment

Respiratory protection : Remarks: In case of insufficient ventilation wear suitable respiratory equipment.
 Wear a positive-pressure supplied-air respirator.

Hand protection : Glove material: Viton (R)
 Heat insulating gloves

Eye protection : Goggles

Skin and body protection : impervious clothing
 Wear cold insulating gloves/face shield/eye protection.

Hygiene measures : Avoid breathing vapors, mist or gas.
 Keep working clothes separately.
 Do not smoke.

Protective measures : The Personal Protective Equipment must be in accordance

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according to Regulation (EC) No. 1907/2006

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with EN standards:respirator EN 136, 140, 149; safety glasses EN 166; protective suit: EN 340, 463, 468, 943-1, 943-2; gloves EN 374, safety shoes EN-ISO 20345.
The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Avoid inhalation of vapour or mist.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form : compressed liquefied gas
Colour : colourless
Odour : slight, original odour

Safety data

Boiling point/boiling range : -19 °C
Flash point : Remarks: does not flash
Ignition temperature : 288 - 293 °C
Vapour pressure : 4.192 hPa
at 20 °C
Vapour pressure : 10.998 hPa
at 54,4 °C
Density : 1,12 g/cm³
at 21,1 °C
Water solubility : 0,373 g/l
Partition coefficient: n-
octanol/water : log Pow estimated 2,01
Relative vapour density : 4
Remarks: (Air = 1.0)

10. STABILITY AND REACTIVITY

Conditions to avoid : Some risk may be expected of corrosive and toxic decomposition products.
Heat, flames and sparks.
Materials to avoid : Reactions with alkali metals.
Hazardous decomposition products : Pyrolysis products containing fluoride
Fluorocarbons
Hydrogen fluoride

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Thermal decomposition : Note: Hazardous decomposition products formed under fire conditions., To avoid thermal decomposition, do not overheat.

11. TOXICOLOGICAL INFORMATION

Acute inhalation toxicity : LC50
Species: rat
Dose: > 965 mg/l
> 207000 ppm
Exposure time: 4 h

Further information : Remarks: Not mutagenic in Ames Test. May cause headache and dizziness. No experimental indications on genotoxicity in vivo found. Detailed toxicological data and examinations, exceeding the data set in the MSDS are available for professional users on request.

12. ECOLOGICAL INFORMATION

Elimination information (persistence and degradability)

Biodegradability : aerobic
Result: Not readily biodegradable.

Ecotoxicity effects

Toxicity to fish : NOEC
Species: Cyprinus carpio (Carp)
Value: > 117 mg/l
Exposure time: 96 h

Toxicity to aquatic plants : NOEC
Growth inhibition
Species: Algae
Value: > 170 mg/l
Exposure time: 72 h

Acute toxicity to aquatic invertebrates : EC50
Species: Daphnia magna (Water flea)
Value: > 160 mg/l
Exposure time: 48 h

13. DISPOSAL CONSIDERATIONS

Product : Dispose according to legal requirements.
Contact manufacturer.

Packaging : Legal requirements are to be considered in regard of reuse or disposal of used packaging materials

14. TRANSPORT INFORMATION

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ADR

UN Number : 3163
Description of the goods : LIQUEFIED GAS, N.O.S.
(TRANS-1,3,3,3-TETRAFLUOROPROP-1-ENE)
Class : 2
Classification Code : 2A
Hazard identification No : 20
Hazard Label : 2.2

IATA

UN Number : 3163
Description of the goods : Liquefied gas, n.o.s.
(trans-1,3,3,3-Tetrafluoroprop-1-ene)
Class : 2.2
Hazard Label : 2.2
Packing instruction (cargo aircraft) : 200
Packing instruction (passenger aircraft) : 200

IMDG

UN Number : 3163
Description of the goods : LIQUEFIED GAS, N.O.S.
(TRANS-1,3,3,3-TETRAFLUOROPROP-1-ENE)
Class : 2.2
Hazard Label : 2.2
EmS Number : F-C
Marine pollutant : no

RID

UN Number : 3163
Description of the goods : LIQUEFIED GAS, N.O.S.
(TRANS-1,3,3,3-TETRAFLUOROPROP-1-ENE)
Class : 2
Classification Code : 2A
Hazard identification No : 20
Hazard Label : 2.2

15. REGULATORY INFORMATION

Labelling according to EC Directives 67/548/EEC

Further information : Not a hazardous substance or preparation according to EC-directives 67/548/EEC or 1999/45/EC.
The product does not need to be labelled in accordance with EC directives or respective national laws.

National legislation

16. OTHER INFORMATION

Further information

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according to Regulation (EC) No. 1907/2006

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This information should not constitute a guarantee for any specific product properties.
