



SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

Version 3.0
Revision date: 16.12.2010

Reservoir XeF2

Material: 346561-8072-000
Print Date 27.03.2012

1. Identification of the substance / preparation and the company / undertaking

Trade name : Gas reservoir, contains: xenon difluoride
Manufacturer/supplier : Carl Zeiss NTS GmbH
Address : Carl-Zeiss-Straße 22
D-73447 Oberkochen
Telephone : +49 7364 20-0
Technical Information : Chemical and material engineering
Telephone : +49 7364 20-4599
Telefax : +49 7364 20-4521
Product Safety : Chemical and material engineering
Mailto : zeih@zeiss.de, hamm@zeiss.de
Emergency telephone : Poisoning Control Center
Telephone : +49 551 19240 (24 hours)

Use of the Substance / Preparation

Sector : Laboratory areas in industry and business, Research and Development
Application category : Industrial use, Professional use
Use : Gas reservoir for vacuum applications

2. Hazards identification

Classification according to Regulation (EC) No. 1272/2008 (GHS) ¹

Oxidizing solids, Category 2
H272: May intensify fire; oxidiser.

Acute toxicity, Category 2; Route of Exposure: Inhalation
H330: Fatal if inhaled.

Acute toxicity, Category 3; Route of Exposure: Oral
H301: Toxic if swallowed.

Skin corrosion, Category 1B
H314: Causes severe skin burns and eye damage.

Classification procedure: Statement of the manufacturer/supplier

Classification according to Directive 67/548/EEC or Directive 1999/45/EC ²

O: Oxidising
R 8: Contact with combustible material may cause fire.

T: Toxic
R25: Toxic if swallowed.

T+: Very toxic



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R26: Very toxic by inhalation.

C: Corrosive
R34: Causes burns.

For footnotes, see section 16.

3. Composition / information on ingredients

Information on the substance / preparation (mixture)

Xenon difluoride

EC-No. : 237-251-2
CAS-No. : 13709-36-9

4. First aid measures

- General advice : Take off all contaminated clothing immediately. Remove breathing equipment only after contaminated clothing has been removed.
- Inhalation : Provide with fresh air. Keep respiration ways free. Rinse mouth. Tranquility, warmth, if necessary artificial respiration. In the event of respiratory arrest, provide artificial respiration. Call a physician immediately.
- Skin contact : Wash off immediately with plenty of water. Immediately apply calcium gluconate solution or calcium gluconate gel. Call a physician immediately.
- Eye contact : Rinse thoroughly with plenty of water, also under the eyelids. Call a physician immediately.
- Ingestion : Clean mouth with water and drink plenty of water afterwards. Do not induce vomiting without prior medical advice. Perforation danger! Call a physician immediately.

5. Fire-fighting measures

- Suitable extinguishing media : Carbon dioxide (CO₂), Dry powder
- Hazards caused by the substance/combustion products/origin of gases : Oxidising Substance/product may lower the ignition temperature of flammable substances. The substance is an oxidizing agent whose heat generation in the reaction with reducing agents or flammable substances may lead to self-ignition. In case of fire formation of fluorine-compounds possible.
- Special protective equipment for fire-fighters : Wear self-contained breathing apparatus and protective suit.
- Other data : Avoid extinguishing water reaching water, ground water or sewage system. Dispose extinguishing water according the local, official regulations. Dispose of remnants of burning in compliance with the official local regulations.

6. Accidental release measures

- Personal precautions : Provide with fresh air. Keep people away from. Move out of



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- dangerous area. Use personal protective equipment. Wear inhalation protection.
- Environmental precautions : Should not be released into the environment. Do not let product enter drains.
- Removal : Neutralize with lime milk or soda and flush with plenty of water. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal. Clean contaminated surface thoroughly.

7. Handling and storage

Handling

- Safe handling advice : Provide sufficient air exchange and/or exhaust in work rooms. Keep container tightly closed and dry. Handle and open container with care. Handle under dry, protective gas.
- Advice on protection against fire and explosion : Substance/product may lower the ignition temperature of flammable substances. The substance is an oxidizing agent whose heat generation in the reaction with reducing agents or flammable substances may lead to self-ignition.

Storage

- Requirements for storage areas and containers : Keep containers tightly closed in a cool, well-ventilated place. Protect against humidity. Store in an air-tight container. Store under nitrogen. Unsuitable container material: Glass or ceramics.
- Incompatibilities/not to be stored with : Store separately from reducing agents. Keep away from combustible material. Keep away from incompatible material. (see section 10).

8. Exposure controls / personal protection

Exposure limit(s)

Components	CAS-No.	Limit value(s)	Source / Type
Hydrogen fluoride	7664-39-3	1 ml/m ³ 0,83 mg/m ³	TRGS 900 - DFG Occupational exposure limit values
		7,0 mg/g Creatinine	TRGS 903 Biological limit values
		4,0 mg/g Creatinine	TRGS 903 Biological limit values
Fluorides	16984-48-8	1 mg/m ³	TRGS 900 - DFG Occupational exposure limit values
		7,0 mg/g Creatinine	TRGS 903 Biological limit values



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		4,0 mg/g Creatinine	TRGS 903 Biological limit values
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- Note : decomposition product
- Hydrogen fluoride - TRGS 900 - DFG : Top-limit 2 (I)
No risk of teratogenicity, observing exposure limit(s).
skin-resorption
- Hydrogen fluoride - TRGS 903 : Parameter: Fluoride
Test material: Urine
Time when sample is taken: End of exposure or end of shift
- Hydrogen fluoride - TRGS 903 : Parameter: Fluoride
Test material: Urine
Time when sample is taken: at the beginning of the next shift
- Fluorides - TRGS 900 - DFG : Top-limit 4 (II)
Inhalable fraction
Fluorides (calculated as fluorine)
No risk of teratogenicity, observing exposure limit(s).
skin-resorption
- Fluorides - TRGS 903 : Parameter: Fluoride
Test material: Urine
Time when sample is taken: End of exposure or end of shift
- Fluorides - TRGS 903 : Parameter: Fluoride
Test material: Urine
Time when sample is taken: at the beginning of the next shift

Occupational exposure controls

- Protective measures : Avoid contact with skin, eyes and clothing. Take off all contaminated clothing immediately. Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier.
- Hygiene measures : Wash hands before breaks and at the end of workday. Keep working clothes separately.
- Respiratory protection : Provide sufficient air exchange and/or exhaust in work rooms. In exceptional situations (e.g. unintentional release, exceeding of air limit values, aerosol formation), appropriately approved breathing protection must be worn.
- Hand protection : Use protective gloves which have been adapted to the respective purpose and are appropriately resistant to chemicals (DIN EN 374). The "Regulations for the use of protective gloves" (BGR 195) contain information on what gloves to choose and for what purpose they should be used. Ask the glove supplier for the penetration time of the glove material. Check gloves before each use for their proper condition.
- Eye protection : Glove material: Nitrile rubber
Wear full face protection Tightly fitting safety goggles
- Skin and body protection : Use personal protective equipment.



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Environmental exposure controls

Additional advice : see section 6

9. Physical and chemical properties

General Information

Form : powder crystalline
Colour : colourless

Important Health Safety and Environmental Information

Melting point/range : ca. 129 °C (sublimation)
Flash point : not applicable
Oxidizing properties : Oxidising Contact with combustible material may cause fire.
Autoignition temperature :
The substance is an oxidizing agent whose heat generation in the reaction with reducing agents or flammable substances may lead to self-ignition.
Vapour pressure : 5,2 hPa at 25 °C
Density : 4,32 g/cm³ at 20 °C
Water solubility : 42 g/l (hydrolyses)

Other information

Other data : hygroscopic

10. Stability and reactivity

Hazardous reactions : Reacts with reducing agents. Reacts with combustible substances. Violant reactions with hydrocarbons (for example solvents) possible. Risk of deflagration. Decomposes explosively into xenon and fluorine at high temperatures.
No decomposition if stored and applied as directed.
Conditions to avoid : Sensitive to air. Heating. humid air and water
Materials to avoid : Flammable materials, Reducing agents, Organic materials, Alcohols, Powdered metals, Aluminium, aluminium alloys
Hazardous decomposition products : Hydrogen fluoride, Hydrolysis product(s):, hydrofluoric acid

11. Toxicological information

Toxicology tests

Acute oral toxicity : LD50 mouse: 90 mg/kg
Acute inhalation toxicity : LC50 mouse: 445 mg/m³ / 2 h



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Skin irritation : Highly corrosive effect on the skin and mucous membranes.
Eye irritation : extremely corrosive, Going blind danger!
Sensitisation : None known.

Practical experience

Skin contact : Risk of absorption through the skin.
Ingestion : Burns in mouth, throat, oesophagus and gastrointestinal tract.
Risk of perforation in the oesophagus and stomach.

General Information

Other information on toxicity : The product should be handled with the care usual when dealing with chemicals.

12. Ecological information

Other environmental data

Other data : No data available. Should not be released into the environment.
Do not let product enter drains. Adequate disposal

13. Disposal considerations

Product : In accordance with local and national regulations, if applicable send back the empty reservoir for refilling.

14. Transport information

Land transport ADR/RID

Class : 5.1 UN No. : 3087 Packaging group : II
Classification code : OT2
Labels : 5.1 (6.1)
Description of the goods : Oxidizing solid, toxic, n.o.s. (Xenon difluoride)

Sea transport IMDG

Class : 5.1 UN No. : 3087 Packaging group : II
EmS : F-A, S-Q

Marine pollutant :

Labels : 5.1 (6.1)
Description of the goods : OXIDIZING SOLID, TOXIC, N.O.S. (XENON DIFLUORIDE)

Air transport ICAO/IATA



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Reservoir XeF₂

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Class : 5.1 UN No. : 3087 Packaging group : II
Labels : 5.1 (6.1)
Description of the goods : Oxidizing solid, toxic, n.o.s. (Xenon difluoride)

15. Regulatory information

Labelling according to Regulation (EC) No. 1272/2008 (GHS) ¹



Signal word: Danger

Hazard statements

H272 : May intensify fire; oxidiser.
H301 : Toxic if swallowed.
H330 : Fatal if inhaled.
H314 : Causes severe skin burns and eye damage.

Precautionary statements

P221 : Take any precaution to avoid mixing with combustibles.
P280 : Wear protective gloves / protective clothing / eye protection / face protection.
P301 + P310 : IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P303 + P361 + P353 : IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305 + P351 + P338 : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 : Immediately call a POISON CENTER or doctor/physician.
P405 : Store locked up.

Other data

CAS-No.: 13709-36-9
For footnotes, see section 16.

Labelling according to Directive 67/548/EEC or Directive 1999/45/EC ²



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Letter(s) for the symbol(s) and indications of danger



O : Oxidising



T+ : Very toxic

R-phrases(s)

R 8 : Contact with combustible material may cause fire.
R25 : Toxic if swallowed.
R26 : Very toxic by inhalation.
R34 : Causes burns.

S-phrases(s)

S17 : Keep away from combustible material.
S26 : In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S28 : After contact with skin, wash immediately with plenty of water.
S36/37/39 : Wear suitable protective clothing, gloves and eye/face protection.
S45 : In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

Other data

EC-No.: 237-251-2

For footnotes, see section 16.

EU-Regulations

Seveso Directive II : 96/82/EG: Falls under Seveso II - Directive / Major accident legislation Number: 1 und 3

Restrictions : 92/85/EWG:
Follow Directive 94/33/EC on the protection of young people at work and its national implementations.
: 92/85/EWG:
Follow Directive 92/85/EC on the protection of pregnant workers and workers who have recently given birth or are breastfeeding, and its national implementations.

16. Other information

The information in this safety sheet is based on the data available at the time of compilation and is intended to describe the product with respect to the precautions to be taken in its use. This information is provided without any guarantee of the properties specified.

Update information



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Relevant changes to the previous version are symbolized by vertical bars at the left edge.

Additions : Section 15, Classification and Labelling according to GHS (Regulation 1272/2008)

Additional advice

Sources: Directive 67/548/EEC Annex I, TRGS 900, TRGS 903, International dangerous goods regulations, Supplier details

Footnotes:

1] Obligatory for substances from December, 01, 2010, obligatory for mixtures from June, 01, 2015.

2] Valid for substances until November, 30, 2010, valid for preparations (mixtures) until May, 31, 2015.