SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

- Trade name: Xenon(II) fluoride, 99.5%
- Item number: 54-1500
- CAS Number: 13709-36-9
- EC number: 237-251-2

1.2 Relevant identified uses of the substance or mixture and uses advised against

No further relevant information available.

1.3 Details of the supplier of the safety data sheet

- Manufacturer/Supplier: Strem Chemicals, Inc.
  7 Mulliken Way
  NEWBURYPORT, MA 01950
  USA
  info@strem.com
- Further information obtainable from: Technical Department
- Emergency telephone number:
  EMERGENCY: CHEMTREC: +1 (800) 424-9300
  During normal opening times: +1 (978) 499-1600

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

- GHS06 skull and crossbones
- Acute Tox. 3 H301 Toxic if swallowed.
- Acute Tox. 2 H330 Fatal if inhaled.

- GHS05 corrosion
- Skin Corr. 1B H314 Causes severe skin burns and eye damage.

2.2 Label elements

- Labelling according to Regulation (EC) No 1272/2008
  The substance is classified and labelled according to the CLP regulation.
- Hazard pictograms

- GHS05
- GHS06

- Signal word Danger

- Hazard-determining components of labelling:
  xenon difluoride
- Hazard statements
  H301 Toxic if swallowed.
Trade name: Xenon(II) fluoride, 99.5%

- H330 Fatal if inhaled.
- H314 Causes severe skin burns and eye damage.

**Precautionary statements**
- P101 If medical advice is needed, have product container or label at hand.
- P102 Keep out of reach of children.
- P103 Read label before use.
- P231 Handle under inert gas.
- P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
- P221 Take any precaution to avoid mixing with combustibles.
- P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P403+P235 Store in a well-ventilated place. Keep cool.
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**SECTION 3: Composition/information on ingredients**

- **3.1 Chemical characterisation: Substances**
  - CAS No. Description
    - 13709-36-9 xenon difluoride
  - Identification number(s)
    - EC number: 237-251-2

**SECTION 4: First aid measures**

- **4.1 Description of first aid measures**
  - General information:
    Immediately remove any clothing soiled by the product.
    Remove breathing equipment only after contaminated clothing have been completely removed.
    In case of irregular breathing or respiratory arrest provide artificial respiration.
  - After inhalation:
    Supply fresh air or oxygen; call for doctor.
    In case of unconsciousness place patient stably in side position for transportation.
  - After skin contact: Immediately wash with water and soap and rinse thoroughly.
  - After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.
  - After swallowing:
    Do not induce vomiting; call for medical help immediately.
    Drink plenty of water and provide fresh air. Call for a doctor immediately.
- **4.2 Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **4.3 Indication of any immediate medical attention and special treatment needed**
  No further relevant information available.
SECTION 5: Firefighting measures

- 5.1 Extinguishing media
- Suitable extinguishing agents:
  CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- 5.2 Special hazards arising from the substance or mixture
  During heating or in case of fire poisonous gases are produced.
- 5.3 Advice for firefighters
  - Protective equipment: Mouth respiratory protective device.

SECTION 6: Accidental release measures

- 6.1 Personal precautions, protective equipment and emergency procedures
  Mount respiratory protective device.
  Wear protective equipment. Keep unprotected persons away.
- 6.2 Environmental precautions: No special measures required.
- 6.3 Methods and material for containment and cleaning up:
  Use neutralising agent.
  Dispose contaminated material as waste according to item 13.
  Ensure adequate ventilation.
- 6.4 Reference to other sections
  See Section 7 for information on safe handling.
  See Section 8 for information on personal protection equipment.
  See Section 13 for disposal information.

SECTION 7: Handling and storage

- 7.1 Precautions for safe handling
  Thorough dedusting.
  Ensure good ventilation/exhaustion at the workplace.
  Open and handle receptacle with care.
- Information about fire - and explosion protection: Keep respiratory protective device available.
- 7.2 Conditions for safe storage, including any incompatibilities
- Storage: Keep cool.
- Requirements to be met by storerooms and receptacles: No special requirements.
- Information about storage in one common storage facility: Not required.
- Further information about storage conditions:
  Keep container tightly sealed.
  Store in cool, dry conditions in well sealed receptacles.
- Recommended storage temperature: Store at temperatures not exceeding -18 °C.
- 7.3 Specific end use(s) No further relevant information available.

SECTION 8: Exposure controls/personal protection

- Additional information about design of technical facilities: No further data; see item 7.
8.1 Control parameters

Ingredients with limit values that require monitoring at the workplace:

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Substance</th>
<th>WEL Long-term value</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>13709-36-9</td>
<td>Xenon difluoride</td>
<td>2.5 mg/m³ as F</td>
<td></td>
</tr>
</tbody>
</table>

Additional information: The lists valid during the making were used as basis.

8.2 Exposure controls

Personal protective equipment:

General protective and hygienic measures:
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the eyes and skin.

Respiratory protection:
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

Protection of hands:

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Material of gloves
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

Penetration time of glove material
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

Eye protection:

Tightly sealed goggles

9.1 Information on basic physical and chemical properties

General Information

Appearance:

Form: Crystalline
Colour: White
Odour: Undistinguishable.
Odour threshold: Not determined.

pH-value: Not applicable.

Change in condition

Melting point/Melting range: 128-130 °C
Boiling point/Boiling range: no data °C

Flash point: Not applicable.
Trade name: Xenon(II) fluoride, 99.5%

- Flammability (solid, gaseous): Not determined.
- Ignition temperature:
  - Decomposition temperature: Not determined.
- Self-igniting: Not determined.
- Danger of explosion: Product does not present an explosion hazard.
- Explosion limits:
  - Lower: Not determined.
  - Upper: Not determined.
- Vapour pressure: no data hPa
- Density at 20 °C: 4.32 g/cm³
- Relative density: Not determined.
- Vapour density: Not applicable.
- Evaporation rate: Not applicable.
- Solubility in / Miscibility with water at 0 °C: 25 g/l
- Partition coefficient (n-octanol/water): Not determined.
- Viscosity:
  - Dynamic: Not applicable.
  - Kinematic: Not applicable.
- Solvent content:
  - Organic solvents: 0.0 %
  - VOC (EC): 0.00 %
- Solids content: 100.0 %
- 9.2 Other information: No further relevant information available.

SECTION 10: Stability and reactivity

- 10.1 Reactivity: No further relevant information available.
- 10.2 Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- 10.3 Possibility of hazardous reactions: No dangerous reactions known.
- 10.4 Conditions to avoid: No further relevant information available.
- 10.5 Incompatible materials: No further relevant information available.
- 10.6 Hazardous decomposition products: No dangerous decomposition products known.

SECTION 11: Toxicological information

- 11.1 Information on toxicological effects
- Acute toxicity
  Toxic if swallowed.
  Fatal if inhaled.
- Primary irritant effect:
- Skin corrosion/irritation
  Causes severe skin burns and eye damage.
Trade name: Xenon(II) fluoride, 99.5%

- Serious eye damage/irritation
  Causes severe skin burns and eye damage.
- Respiratory or skin sensitisation Based on available data, the classification criteria are not met.
- CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)
  - Germ cell mutagenicity Based on available data, the classification criteria are not met.
  - Carcinogenicity Based on available data, the classification criteria are not met.
  - Reproductive toxicity Based on available data, the classification criteria are not met.
- STOT-single exposure Based on available data, the classification criteria are not met.
- STOT-repeated exposure Based on available data, the classification criteria are not met.
- Aspiration hazard Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

- 12.1 Toxicity
  - Aquatic toxicity: No further relevant information available.
- 12.2 Persistence and degradability No further relevant information available.
- 12.3 Bioaccumulative potential No further relevant information available.
- 12.4 Mobility in soil No further relevant information available.
- Additional ecological information:
  - General notes: Must not reach sewage water or drainage ditch undiluted or unneutralised.
- 12.5 Results of PBT and vPvB assessment
  - PBT: Not applicable.
  - vPvB: Not applicable.
- 12.6 Other adverse effects No further relevant information available.

SECTION 13: Disposal considerations

- 13.1 Waste treatment methods
  - Recommendation
    Must not be disposed together with household garbage. Do not allow product to reach sewage system.
- Uncleaned packaging:
  - Recommendation: Disposal must be made according to official regulations.

SECTION 14: Transport information

- 14.1 UN-Number
  - ADR, IMDG, IATA UN3085
- 14.2 UN proper shipping name
  - ADR 3085 OXIDIZING SOLID, CORROSIVE, N.O.S.
  - IMDG OXIDIZING SOLID, CORROSIVE, N.O.S.
  - IATA Oxidizing solid, corrosive, n.o.s.
- 14.3 Transport hazard class(es)
  - ADR
    - Class 5
**Trade name:** Xenon(II) fluoride, 99.5%

<table>
<thead>
<tr>
<th>Label</th>
<th>5.1+8</th>
</tr>
</thead>
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<td>IMDG</td>
<td><img src="image" alt="IMDG symbol" /></td>
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<tr>
<td>Class</td>
<td>5.1 Oxidising substances.</td>
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<tr>
<td>Label</td>
<td>5.1/8</td>
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<tr>
<td>IATA</td>
<td><img src="image" alt="IATA symbol" /></td>
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<td>Class</td>
<td>5.1 Oxidising substances.</td>
</tr>
<tr>
<td>Label</td>
<td>5.1 (8)</td>
</tr>
<tr>
<td>14.4 Packing group</td>
<td>III</td>
</tr>
<tr>
<td>14.5 Environmental hazards:</td>
<td>No</td>
</tr>
<tr>
<td>Marine pollutant:</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>14.6 Special precautions for user</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>EMS Number:</td>
<td>F-A,S-Q</td>
</tr>
<tr>
<td>14.7 Transport in bulk according to Annex II of Marpol and the IBC Code</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

**Transport/Additional information:**

| ADR | Limited quantities (LQ) | 5 kg |
|     | Code: E1 |     |
|     | Maximum net quantity per inner packaging: 30 g |
|     | Maximum net quantity per outer packaging: 1000 g |
| IMDG | Limited quantities (LQ) | 5 kg |
|     | Code: E1 |     |
|     | Maximum net quantity per inner packaging: 30 g |
|     | Maximum net quantity per outer packaging: 1000 g |

**UN "Model Regulation":**

UN 3085 OXIDIZING SOLID, CORROSIVE, N.O.S., 5.1 (8), III

**SECTION 15: Regulatory information**

| 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture |
| Directive 2012/18/EU |
| Named dangerous substances - ANNEX I Substance is not listed. |
| Seveso category H2 ACUTE TOXIC |
| Qualifying quantity (tonnes) for the application of lower-tier requirements 50 t |
| Qualifying quantity (tonnes) for the application of upper-tier requirements 200 t |

(Contd. on page 8)
Trade name: Xenon(II) fluoride, 99.5%

15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

**SECTION 16: Other information**

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Department issuing MSDS**: Technical Department.
- **Contact**: Technical Director
- **Abbreviations and acronyms**:
  - ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
  - IMDG: International Maritime Code for Dangerous Goods
  - IATA: International Air Transport Association
  - GHS: Globally Harmonised System of Classification and Labelling of Chemicals
  - EINECS: European Inventory of Existing Commercial Chemical Substances
  - CAS: Chemical Abstracts Service (division of the American Chemical Society)
  - VOC: Volatile Organic Compounds (USA, EU)
  - PBT: Persistent, Bioaccumulative and Toxic
  - vPvB: very Persistent and very Bioaccumulative
  - Acute Tox. 3: Acute toxicity, Hazard Category 3
  - Acute Tox. 2: Acute toxicity, Hazard Category 2
  - Skin Corr. 1B: Skin corrosion/irritation, Hazard Category 1B