Section 1: Identification

1.1) Product identifier:

Product Name : Gadolinium(III) fluoride
Synonyms       : Gadolinium Trifluoride
Product Number : PO2910
CAS Number     : 13765-26-9

1.2) Company information:

Address: MSE Supplies, LLC
         4400 E Broadway Blvd, Suite 600
         Tucson, AZ 85711, USA
Telephone: +1 520-789-6673
Email: info@msesupplies.com
Emergency Telephone: +1-703-527-3887

1.3) Relevant identified uses of the substance or mixture and uses advised against:

Identifies uses: Laboratory chemicals, Synthesis of substances

Section 2: Hazard(s) Identification

2.1) Classification of the substance or mixture GHS classification in accordance with 29 CFR 1910 (OSHA HCS):

Not a hazardous substance or mixture.

2.2) GHS Label elements, including precautionary statements:

Not a hazardous substance or mixture.

2.3) Hazards not otherwise classified (HNOC) or covered by GHS:

None

Section 3: Composition/Information on Ingredients

3.1) Substances:

Formula: GdF₃
Section 4: First-Aid Measures

4.1) Description of first aid measures:

General advice
Hydrofluoric (HF) acid burns require immediate and specialized first aid and medical treatment. Symptoms may be delayed up to 24 hours depending on the concentration of HF. After decontamination with water, further damage can occur due to penetration/absorption of the fluoride ion. Treatment should be directed toward binding the fluoride ion as well as the effects of exposure. Skin exposures can be treated with a 2.5% calcium gluconate gel repeated until burning ceases. More serious skin exposures may require subcutaneous calcium gluconate except for digital areas unless the physician is experienced in this technique, due to the potential for tissue injury from increased pressure. Absorption can readily occur through the subungual areas and should be considered when undergoing decontamination. Prevention of absorption of the fluoride ion in cases of ingestion can be obtained by giving milk, chewable calcium carbonate tablets or Milk of Magnesia to conscious victims. Conditions such as hypocalcemia, hypomagnesemia and cardiac arrhythmias should be monitored for, since they can occur after exposure.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration.

In case of skin contact
Wash off with soap and plenty of water.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water.

4.2) Most important symptoms and effects, both acute and delayed:
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

4.3) Indication of any immediate medical attention and special treatment needed:

No data available

Section 5: Fire-Fighting Measures

5.1) Suitable extinguishing media:

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2) Special hazards arising from the substance or mixture:

Hydrogen fluoride, gadolinium oxides

5.3) Advise for firefighters:

Wear self-contained breathing apparatus for firefighting if necessary.

5.4) Further information:

No data available

Section 6: Accidental Release Measures

6.1) Personal precautions, protective equipment, and emergency procedures:

Avoid dust formation. Avoid breathing vapors, mist or gas.

For personal protection see section 8.

6.2) Environmental precautions:

No special environmental precautions required.

6.3) Methods and materials for containment and cleaning up:

Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4) Reference to other sections:

For disposal see section 13.
Section 7: Handling and Storage

7.1) Precautions for safe handling:

Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.

Provide appropriate exhaust ventilation at places where dust is formed.

For precautions see section 2.2.

7.2) Conditions for safe storage, including any incompatibilities:

Keep container tightly closed in a dry and well-ventilated place.

Keep in a dry place.

Storage class (TRGS 510): 13: Non Combustible Solids

7.3) Specific end use(s):

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

Section 8: Exposure Controls/Personal Protection

8.1) Control parameters:

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-Number</th>
<th>Value</th>
<th>Control Parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gadolinium(III) fluoride</td>
<td>13765-26-9</td>
<td>TWA</td>
<td>2.5 mg/m³</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Remarks CAS number varies with compound</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>2.5 mg/m³</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Bone damage</td>
</tr>
</tbody>
</table>
Fluorosis
Substances for which there is a Biological Exposure Index or Indices (see BEI® section)
Not classifiable as a human carcinogen varies

| PEL | 2.5 mg/m³ | California permissible exposure limits for chemical contaminants (Title 8, Article 107) |

Biological occupational exposure limits

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-Number</th>
<th>Parameters</th>
<th>Value</th>
<th>Biological Specimen</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gadolinium(III) fluoride</td>
<td>13765-26-9</td>
<td>Fluoride</td>
<td>2mg/l</td>
<td>Urin</td>
<td>ACGIH - Biological Exposure Indices (BEI)</td>
</tr>
</tbody>
</table>

Remarks

Prior to shift (16 hours after exposure ceases)

| Fluoride   | 3mg/l | Urin | ACGIH - Biological Exposure Indices (BEI) |

End of shift (As soon as possible after exposure ceases)

8.2) Exposure controls:

Appropriate engineering controls:

General industrial hygiene practice.

Personal protective equipment

Eye/face protection:

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection:

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.
Body protection:

Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific workplace. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection:

Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure:

No special environmental precautions required.

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**Section 9: Physical and Chemical Properties**

9.2) Information on basic physical and chemical properties:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Appearance (physical state, color, etc.)</td>
<td>White powder</td>
</tr>
<tr>
<td>b) Upper/lower flammability or explosive limits</td>
<td>No data available</td>
</tr>
<tr>
<td>c) Odor</td>
<td>No data available</td>
</tr>
<tr>
<td>d) Odor threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>e) Vapor pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>f) Vapor density</td>
<td>No data available</td>
</tr>
<tr>
<td>g) pH</td>
<td>No data available</td>
</tr>
<tr>
<td>h) Density</td>
<td>7.1 g/cm$^3$</td>
</tr>
<tr>
<td>i) Melting point/freezing point</td>
<td>1,231°C</td>
</tr>
<tr>
<td>j) Solubility(ies)</td>
<td>No data available</td>
</tr>
<tr>
<td>k) Initial boiling point and boiling range</td>
<td>No data available</td>
</tr>
<tr>
<td>l) Flash point</td>
<td>No data available</td>
</tr>
</tbody>
</table>
m) Evaporation rate  |  No data available  

n) Flammability (solid, gas) |  No data available  

o) Partition coefficient: n-octanol/water  |  No data available  

q) Auto-ignition temperature  |  No data available  

r) Decomposition temperature  |  No data available  

s) Viscosity  |  No data available  

t) Explosive properties  |  No data available  

u) Oxidizing properties  |  No data available  

9.2) Other Safety information:

No data available

Section 10: Stability and Reactivity

10.1) Reactivity:

No data available

10.2) Chemical Stability:

Stable under recommended storage conditions.

10.3) Possibility of hazardous reactions:

No data available

10.4) Conditions to avoid:

No data available

10.5) Incompatible materials:

No data available

10.6) Hazardous decomposition products:

Hazardous decomposition products formed under fire conditions. - Hydrogen fluoride, gadolinium oxides  
Other decomposition products - No data available
In the event of a fire: see section 5.

Section 11: Toxicological Information

11.1) Information on toxicological effects:

**Acute toxicity:**
No data available

**Skin corrosion/irritation:**
No data available

**Serious eye damage/ eye irritation:**
No data available

**Respiratory or skin sensitization:**
No data available

**Germ cell mutagenicity:**
No data available

**Carcinogenicity:**

- **IARC:** No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
- **NTP:** No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
- **OSHA:** No component of this product present at levels greater than or equal to 0.1% is on OSHA’s list of regulated carcinogens.

**Reproductive toxicity:**
No data available

**Specific target organ toxicity – single exposure:**
No data available

**Specific target organ toxicity – repeated exposure:**
No data available
Aspiration hazard:
No data available

Additional information:
RTECS: Not available
Fluoride ion can reduce serum calcium levels possibly causing fatal hypocalcemia.
Salivation, Nausea, Vomiting, Fever, Cough, Shortness of breath, Headache

Section 12: Ecological Information

12.1) Toxicity:
No data available

12.2) Persistence and degradability:
No data available

12.3) Bioaccumulative potential:
No data available

12.4) Mobility in soil:
No data available

12.5) Results of PBT and vPvB assessment:
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6) Other adverse effects:
No data available

Section 13: Disposal Considerations

13.1) Waste treatment methods:
Product:
Offer surplus and non-recyclable solutions to a licensed disposal company.

**Contaminated packaging:**

Dispose of as unused product.

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### Section 14: Transport Information

**DOT (US):**

Not dangerous goods

**IMDG:**

Not dangerous goods

**IATA:**

Not dangerous goods

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### Section 15: Regulatory Information

**SARA 302 Components:**

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components:**

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**SARA 311/312 Hazards:**

No SARA Hazards

**Massachusetts Right To Know Components:**

No components are subject to the Massachusetts Right to Know Act.

**Pennsylvania Right To Know Components:**

<table>
<thead>
<tr>
<th>Chemical</th>
<th>CAS#</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gadolinium(III) fluoride</td>
<td>13765-26-9</td>
<td>2008-06-01</td>
</tr>
</tbody>
</table>
New Jersey Right To Know Components:

<table>
<thead>
<tr>
<th>Substance</th>
<th>CAS#</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gadolinium(III) fluoride</td>
<td>13765-26-9</td>
<td>2008-06-01</td>
</tr>
</tbody>
</table>

California Prop. 65 Components:

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

Section 16: Other Information

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. MSE Supplies LLC and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product.