



LTS Research Laboratories, Inc.  
Safety Data Sheet  
Hafnium Fluoride

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1. Product and Company Identification

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Trade Name: Hafnium fluoride  
Chemical Formula:  $\text{HfF}_4$   
Recommended Use: Scientific research and development

Manufacturer/Supplier: LTS Research Laboratories, Inc.  
Street: 37 Ramland Road  
City: Orangeburg  
State: New York  
Zip Code: 10962  
Country: USA  
Tel #: 855-587-2436 / 855-lts-chem

24-Hour Emergency Contact: 800-424-9300 (US & Canada)  
+1-703-527-3887 (International)

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2. Hazards Identification

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Signal Word: Danger



Hazard Statements: H300+H310+H330: Fatal if swallowed or in contact with skin or if inhaled  
H314: Causes severe skin burns and eye damage

Precautionary Statements: P260: Do not breathe dust/fume/gas/mist/vapours/spray  
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  
P320: Specific treatment is urgent  
P361: Remove/Take off immediately all contaminated clothing  
P405: Store locked up  
P501: Dispose of contents/container in accordance with local/regional/national/international regulations

HMIS Health Ratings (0-4):  
Health: 3  
Flammability: 0  
Physical: 1

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### 3. Composition

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Chemical Family:	Salt
Additional Names:	Hafnium(IV) Fluoride, Hafnium tetrafluoride
Hafnium fluoride (HfF <sub>4</sub> ):	
Percentage:	100 wt%
CAS #:	13709-52-9
EC #:	237-258-0

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### 4. First Aid Procedures

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General Treatment:	Seek medical attention if symptoms persist.
Special Treatment:	None
Important Symptoms:	None
Inhalation:	Remove victim to fresh air. Supply oxygen if breathing is difficult. Remove breathing apparatus only after contaminated clothing has been completely removed.
Ingestion:	Do not induce vomiting. Seek immediate medical attention.
Skin:	Wash affected area with mild soap and water. Remove any contaminated clothing. Rub in calcium gluconate solution or calcium gluconate gel immediately.
Eyes:	Flush eyes with water, blinking often for several minutes. Remove contact lenses if present and easy to do. Continue rinsing

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### 5. Firefighting Measures

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Flammability:	Non-flammable
Extinguishing Media:	CO <sub>2</sub> , extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
Spec. Fire Fighting Procedure:	Use full-face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes. See section 10 for decomposition products.

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### 6. Accidental Release Measures

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If Material Is Released/Spilled:	Wear appropriate respiratory and protective equipment specified in special protection information. Isolate spill area and provide ventilation. Vacuum up spill using a high efficiency particulate absolute (HEPA) air filter and place in a closed container for disposal. Take care not to raise dust.
Environmental Precautions:	Isolate runoff to prevent environmental pollution.

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### 7. Handling and Storage

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Handling Conditions:	Wash thoroughly after handling.
Storage Conditions:	Store in a cool dry place in a tightly sealed container. Store apart from materials and conditions listed in section 10.
Work/Hygienic Maintenance:	Do not use tobacco or food in work area. Wash thoroughly before eating and smoking. Do not blow dust off clothing or skin with compressed air.
Ventilation:	Provide sufficient ventilation to maintain concentration at or below threshold limit.

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## 8. Exposure Controls and Personal Protection

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Permissible Exposure Limits:	0.5 mg/m <sup>3</sup> as Hf, long-term value
Threshold Limit Value:	0.5 mg/m <sup>3</sup> as Hf, long-term value
Special Equipment:	None
Respiratory Protection:	Dust Respirator
Protective Gloves:	Rubber gloves
Eye Protection:	Safety glasses or goggles, Full face protection.
Body Protection:	Protective work clothing. Wear close-toed shoes and long sleeves/pants.

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## 9. Physical and Chemical Characteristics

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Color	White
Form:	Powder, Granules, Pellets, Sputtering target, Custom parts
Odor:	N/A
Water Solubility:	N/A
Boiling Point:	970 °C (sublimes)
Melting Point:	N/A
Flash Point:	N/A
Autoignition Temperature:	N/A
Density:	7.1 g/cc
Molecular weight:	254.48 g/mol

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## 10. Reactivity

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Stability:	Stable under recommended storage conditions
Reacts With:	Oxidizing agents
Incompatible Conditions:	None
Hazardous Decomposition Products:	Hydrogen Fluoride, Metal oxide fume

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## 11. Toxicological Information

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Potential Health Effects:	
Eyes:	May cause irritation
Skin:	Fatal
Ingestion:	Fatal, Strong corrosive effect on mouth and throat to the danger of perforation of esophagus and stomach.
Inhalation:	Fatal
Chronic:	Hafnium and hafnium compounds may be irritating to the skin and eyes. There are reports of liver damage from hafnium exposure. Fluorides may cause salivation, nausea, vomiting, diarrhea and abdominal pain, followed by weakness, tremors, shallow respiration, convulsions and coma. May cause brain and kidney damage. Chronic Fluoride poisoning can cause severe bone changes, loss of weight, anorexia, anemia and dental defects.
Signs & Symptoms:	N/A
Aggravated Medical Conditions:	N/A
Median Lethal Dose:	N/A
Carcinogen:	N/A

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## 12. Ecological Information

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Aquatic Toxicity: Low  
Persistent Bioaccumulation Toxicity: No  
Very Persistent, Very Bioaccumulative: No  
Notes: N/A

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## 13. Disposal Considerations

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Dispose of in accordance with local, state, national, and international regulations.

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## 14. Transportation Data

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Hazardous: Hazardous for transportation as powder.



Hazard Class: 6.1 Toxic substances  
Sub Class: 8 Corrosive substances  
Packing Group: II  
UN Number: UN3290  
Proper Shipping Name: Toxic solid, corrosive, inorganic, n.o.s. (Hafnium(IV) Fluoride)

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## 15. Regulatory Information

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Sec 302 Extremely Hazardous: No  
Sec 304 Reportable Quantities: N/A  
Sec 313 Toxic Chemicals: No

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## 16. Other Information

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This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.

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