



XI'AN FUNCTION MATERIAL GROUP CO., LTD  
Material Safety Data Sheet  
Niobium (V) fluoride

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1. Product and Company Identification

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Trade Name: Niobium (V) fluoride  
Chemical Formula: NbF<sub>5</sub>  
Recommended Use: Scientific research and development

Manufacturer/Supplier: XI'AN FUNCTION MATERIAL GROUP CO., LTD  
Street: No. 69, Gazelle Valley, High-Tech Zone  
City: XI'AN  
State: Shannxi  
Zip Code: 710077  
Country: China  
Tel #: +86-29-88993870/+86-13519132051

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2. Hazards Identification

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Signal Word: Danger



Hazard Statements: H302+H312+H332: Harmful if swallowed, in contact with skin or if inhaled  
H314: Causes severe skin burns and eye damage.  
H318: Causes serious eye damage.

Precautionary Statements: P260: Do not breathe dust or mist.  
P264: Wash skin thoroughly after handling.  
P270: Do not eat, drink or smoke when using this product.  
P271: Use only outdoors or in a well-ventilated area.  
P280: Wear protective gloves/ protective clothing/ eye protection/ face protection.  
P301+P312+P330: IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.  
P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
P303+P361+P353: IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.  
P304+P340+P310: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.  
P305+P351+P338+P310: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.  
P363: Wash contaminated clothing before reuse.  
P405: Store locked up.  
P501: Dispose of contents/ container to an approved waste disposal plant.

HMIS Health Ratings (0-4):  
Health: 3  
Flammability: 0  
Physical: 2

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### 3. Composition

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Material Family:	Salt
Additional Names:	Niobium pentafluoride
Niobium(V) fluoride (NbF <sub>5</sub> ):	
Percentage:	100 wt%
CAS #:	7783-68-8
EC #:	232-020-2

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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. Keep patient warm. Seek immediate medical attention.
Ingestion:	Seek immediate medical attention.
Skin:	Immediately wash affected area with mild soap and water. Remove any contaminated clothing. Seek immediate medical attention.
Eyes:	Flush eyes with water, blinking often for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Seek immediate medical attention.

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### 5. Firefighting Measures

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Flammability:	Non-flammable
Extinguishing Media:	Do not use water for metal fires – use CO <sub>2</sub> , sand, extinguishing powder.
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. Keep unprotected persons away. Isolate spill area and provide ventilation. Use neutralizing agent. 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:	Handle under dry protective gas. Avoid contact with eyes and skin. Wash thoroughly after handling.
Storage Conditions:	Store in a cool dry place in a tightly sealed container. Store under dry inert gas. Do not store in glass. Store away from water/moisture, strong bases, oxidizing agents. This product is moisture sensitive. Protect from humidity and water. 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:	2.5 mg/m <sup>3</sup> as F, long-term value
Threshold Limit Value:	2.5 mg/m <sup>3</sup> as F, long-term value
Special Equipment:	Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.
Respiratory Protection:	Use a recommended dust respirator or mask. Only use equipment tested and approved under appropriate government standards.
Protective Gloves:	Nitrile rubber gloves with minimum thickness of 0.11 mm
Eye Protection:	Safety glasses or goggles
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 to pale yellow
Form:	Powder, Granules, Pellets, Sputtering target, Custom parts
Odor:	N/A
Water Solubility:	Reacts
Boiling Point:	220°C
Melting Point:	72°C
Flash Point:	N/A
Autoignition Temperature:	N/A
Density:	3.92 g/cc
Molecular weight:	187.90 g/mol

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## 10. Reactivity

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Stability:	Stable under recommended storage conditions
Reacts With:	Oxidizing agents, strong acids, bases. Reacts dangerously with glass.
Incompatible Conditions:	Water/moisture
Hazardous Decomposition Products:	Metal oxide fume, hydrogen fluoride, niobium oxides

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## 11. Toxicological Information

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Potential Health Effects:	
Eyes:	Causes serious eye damage
Skin:	Harmful in contact with skin: danger through skin absorption. Causes severe skin burns.
Ingestion:	Harmful if swallowed.
Inhalation:	Harmful if inhaled
Chronic:	N/A
Signs & Symptoms:	Salivation, nausea, abdominal pain, vomiting, fever, rapid respiration. Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Spasm, inflammation and edema of the larynx. Spasm, inflammation and edema of the bronchi. Pneumonitis, pulmonary edema, burning sensation
Aggravated Medical Conditions:	Fluoride ion can reduce serum calcium levels possibly causing fatal hypocalcemia.
Median Lethal Dose:	N/A
Carcinogen:	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 identified as a carcinogen or potential carcinogen by OSHA.

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## 12. Ecological Information

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Aquatic Toxicity: N/A  
Persistent Bioaccumulation Toxicity: N/A  
Very Persistent, Very Bioaccumulative: N/A  
Notes: Do not allow undiluted product or large quantities to reach ground water, water course or sewage system  
Do not allow material to be released to the environment without proper governmental permits.  
Avoid transfer into the environment

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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



Hazard Class: 8 Corrosive substances  
Packing Group: II  
UN Number: UN3260  
Proper Shipping Name: Corrosive solid, acidic, inorganic, n.o.s. (Niobium (V) 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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