

Plasmaterials, Inc.
 2268 Research Drive
 Livermore, CA 94550
 Ph: (925) 447-4030 Fx: (925) 447-4031
<http://plasmaterials.com>

MATERIAL SAFETY DATA SHEET

Section 1- PRODUCT IDENTIFICATION

| | |
|---------------------------------------|-------------------------------------------------------------------------|
| COMPOSITION AlF³ | PRODUCT NAME Aluminum Fluoride Aluminum Trifluoride |
|---------------------------------------|-------------------------------------------------------------------------|

Section 2- HAZARDOUS INGREDIENTS

Note: Products under normal conditions do not represent an inhalation, ingestion or contact health hazard.

| MATERIAL OR COMPONENT | CAS NUMBER | WT% | EXPOSURE LIMITS | |
|--------------------------|------------------|------------|------------------|----------------------------------------------------|
| | | | OSHA PEL (Mg/M3) | ACGIH TLV(MG/M3) |
| Aluminum Fluoride | 7784-18-1 | 100 | Not Set | 2.5mg/m³ (As Fluoride) |

Section 3- PHYSICAL DATA

| | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| MATERIAL IS (AT NORMAL CONDITIONS) <input type="checkbox"/> Liquid <input checked="" type="checkbox"/> Solid <input type="checkbox"/> Gas <input type="checkbox"/> Other | APPEARANCE AND ODOR Colorless crystals, white powder |
| MELTING POINT (BASE METAL) <p style="text-align: center;">1291° C</p> | SPECIFIC GRAVITY <p style="text-align: center;">2.88gm/cc</p> |

Section 4- FIRE AND EXPLOSION

| | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-------------|-------------|
| Flash Point (Method Used) | Flammable Limits | LEL | UEL |
| N/A | Non Flammable | N.A. | N.A. |
| EXTINGUISHING MEDIA Use dry chemical, CO² | | | |
| SPECIAL FIRED FIGHTING PROCEDURES Wear a self-contained breathing apparatus and full protective clothing to prevent contact with skin and eyes. | | | |
| UNUSUAL FIRE AND EXPLOSION HAZARDS Explosion hazard: aluminum trifluoride reacts violently when impacted in contact with Na and K. When involved in a fire, AlF³ evolves highly toxic fumes. It may explode when heated with reducing agents. | | | |

| Section 5- REACTIVITY DATA | |
|------------------------------------------------------|----------------------------------------------------------------------------------|
| STABILITY Stable | INCOMPATIBILITY (MATERIALS TO AVOID) Acid, acid fumes, reducing agents |
| CONDITIONS TO AVOID Heat | |
| HAZARDOUS DECOMPOSITION PRODUCTS F, Al, HF | |

| Section 6- HEALTH HAZARD GUIDE |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MAJOR EXPOSURE HAZARD <input type="checkbox"/> Inhalation <input type="checkbox"/> Skin <input type="checkbox"/> Skin Absorption <input type="checkbox"/> Eye Contact <input type="checkbox"/> Ingestion |
| EFFECTS OF OVEREXPOSURE <p>INHALATION: Irritating and corrosive to respiratory tract and mucous membranes. May cause ulcers of the upper respiratory tract. Coughing, sneezing, difficulty breathing and pulmonary edema may occur.</p> <p>SKIN CONTACT: Extremely irritating and corrosive. May cause severe skin burns, which are slow in healing.</p> <p>EYE CONTACT: Extremely irritating and corrosive. May cause burning and permanent injury to eyes.</p> <p>OTHER: Chronic fluorine poisoning consists of bone sclerosis calcification of the ligaments, mottled teeth. Large doses can cause severe nausea, vomiting, diarrhea, abdominal changes and pulmonary fibrosis. Loss of weight, anorexia, anemia, wasting and cachexia are symptoms. Intoxication symptoms include gastric, intestinal, circulatory, respiratory and nervous complaints and skin rashes. Acute effects from fluorines are due to hydrogen fluoride, which is extremely irritating and corrosive to skin as the mucous membranes. Inhalation of vapor may cause ulcers of the upper respiratory tract. 50-250ppm or IDLH. causes severe skin burns, which are slow to heal. The subcutaneous tissues may be affected, becoming blanched and bloodless. Gangrene may follow.</p> |
| EMERGENCY & FIRST AID PROCEDURES <p>INHALATION: Remove from exposed area to fresh air immediately; give oxygen if breathing is difficult. Seek medical attention.</p> <p>SKIN CONTACT: Wash affected area with soap or mild detergent and large amounts of water until no evidence of the chemical remains. Seek medical attention.</p> <p>EYE CONTACT: Flush eyes with lukewarm water for fifteen minutes. Seek medical attention.</p> <p>INGESTION: Give 1-2 cups of milk or water and induce vomiting. Seek medical attention.</p> |

| Section 7- SPILL OR LEAK PROCEDURES |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SPILL OR LEAK PROCUDRES Wear a self-contained breathing apparatus and full protective clothing. Isolate the area where the spill occurred and insure proper ventilation if available. Vacuum up the spill using a high efficiently unit and place in a container for proper disposal. Take care not to raise dust. |
| WASTE DISPOSAL METHODS Observe all federal, state and local regulations when storing or disposing of this substance. |

Section 8- SPECIAL PROTECTION

RESPIRATORY

Wear NIOSH-approved dust-mist-fume cartridge respirator.

VENTILATION

Local exhaust: Maintain below TLV for AIF³. Mechanical ventilation recommended.

EYE PROTECTION & PROTECTIVE CLOTHING

Wear Safety glasses for eyes. Wear neoprene gloves on hands. Wear protective clothing to prevent contamination of skin and clothes.

Section 9- SPECIAL PRECAUTIONS

Store in tightly closed containers in a cool, dry place. Wash hands and face thoroughly after handling and before eating.

DOT Class: Corrosive

UN Number: 1759

IMCO Class: Not Classified

The information in this MSDS was obtained from sources, which we believe are reliable. However, the information is provided without any representation or warranty, express or implied, regarding the accuracy or correctness.

The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.