

## **Material Safety Data Sheet**

Identity: Titanium Fluoride

Formula: TiF<sub>3</sub>

### SECTION I - GENERAL INFORMATION

Manufacturer: [Stanford Advanced Materials](#) (SAM)

The information below is believed to be accurate and represents the best information available to SAM. However, SAM makes no warranty, expressed or implied with respect to such information and assumes no liability resulting from its use.

### SECTION II - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

CAS #	OSHA PEL	ACGIH TLV	%
13470-08-1			

### SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

Physical States: Powder

Boiling Point: 1400 °C (2552 °F)

Vapor Pressure (vs. air or mmHg): N/A

Melting Point: 1200 °C (2192 °F)

Density: 3.4 g/cm<sup>3</sup>

Evaporation Rate: N/A

Flash Point: N/A

Solubility in water: N/A

*Appearance and odor:* Dark red, Pungent (makes eyes water)

### SECTION IV - FIRE AND EXPLOSION HAZARD DATA:

*-Product does not present an explosion hazard.*

*Extinguishing Media:* Use suitable extinguishing agent for surrounding material and type of fire

*Special Fire Fighting Procedures:*

Firefighters must wear full face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes. Fumes from fire are hazardous. Isolate runoff to prevent environmental pollution.

*Unusual Fire and Explosion Hazards:*

SECTION V – STABILITY AND REACTIVITY

*Thermal decomposition / conditions to be avoided:* Decomposition will not occur if used and stored according to specifications.

*Materials to be avoided:* Water/moisture, Oxidizing agents, Bases.

*Dangerous reactions:* Reacts with water.

*Dangerous products of decomposition:* Hydrogen fluoride.

SECTION VI - HEALTH HAZARD DATA

*Routes of entry:* Inhalation? Yes      Skin? Yes      Eyes? Yes      Ingestion? Yes      Other?

*Acute toxicity:*

*Primary irritant effect:*

*On the skin:* Corrosive effect on skin and mucous membranes.

*On the eye:* Strong corrosive effect.

*Sensitization:* No sensitizing effects known.

*Subacute to chronic toxicity:* Titanium and titanium compounds are considered physiologically inert.

There are no reported cases in the literature where titanium as such has caused human intoxication.

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.

*Subacute to chronic toxicity:* Corrosive materials are acutely destructive to the respiratory tract, eyes, skin and digestive tract. Eye contact may result in permanent damage and complete vision loss. Inhalation may result in respiratory effects such as inflammation, edema, and chemical pneumonitis. May cause coughing, wheezing, laryngitis, shortness of breath, headache, nausea and vomiting. Ingestion may cause damage to the mouth, throat and esophagus. May cause skin burns or irritation depending on the severity of the exposure.

*Emergency and First Aid Procedures:*

*Inhalation:* Remove victim to fresh air, keep warm and quiet, and give oxygen if breathing is difficult; seek medical attention

*Ingestion:* Give 1-2 glasses of milk or water and induce vomiting, seek medical attention. Never induce vomiting or give anything by mouth to an unconscious person

*Skin:* Remove contaminated clothing, brush material off skin, wash affected area with mild soap and water, and seek medical attention if symptoms persist

*Eye:* Flush eyes with lukewarm water, lifting upper and lower eyelids for at least 15 minutes and seek medical attention

SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE

*Steps to be taken in case material is released or spilled:*

Wear appropriate respiratory and protective equipment specified in section VIII. Isolate spill area, provide ventilation and extinguish sources of ignition. Vacuum up spill using a high efficiency particulate absolute (HEPA) air filter and place in a closed container for proper disposal. Take care not to raise dust.

*Waste disposal method:*

Dispose of in accordance with state, local, and federal regulations.

*Hazard Label Information:*

Store in cool, dry area and in tightly sealed container. Wash thoroughly after handling.

SECTION VIII - CONTROL MEASURES
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*Protective Equipment Summary (Hazard Label Information):*

NIOSH approved respirator, impervious gloves, safety glasses, clothes to prevent contact.

*Ventilation:*

Local Exhaust: To maintain concentration at low exposure levels.

Mechanical (General): Recommended.

*Work/Hygienic/Maintenance Practices:*

Implement engineering and work practice controls to reduce and maintain concentration of exposure at low levels. Use good housekeeping and sanitation practices. Do not use tobacco or food in work area. Wash thoroughly before eating or smoking. Do not blow dust off clothing or skin with compressed air.

Please be advised that N/A can either mean Not Applicable or No Data Has Been Established
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