


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

## SAFETY DATA SHEET

| Section 1- IDENTIFICATION  |   |   |
|--|---|---|
| COMPOSITION<br><b>NaF</b>  |   | PRODUCT NAME<br><b>Sodium Fluoride</b>  |
| SUPPLIER:<br><b>Plasmaterials, Inc.<br/>2268 Research Drive<br/>Livermore, CA 94550<br/>Ph: 925-447-4030</b> | RECOMMENDED USE:<br><b>Laboratory Chemicals<br/>Scientific Research</b> | EMERGENCY TELEPHONE NUMBERS<br><b>US: 001-800-424-9300<br/>Europe: 001-703-527-3887</b> |

| Section 2- HAZARD(S) IDENTIFICATION  |  |
|--|--|
| <b>Physical Hazards:</b> Not Classified  | <b>Acute Toxicity, Oral:</b> Category 3 (H301) |
| <b>Serious Eye Irritation/Eye Damage:</b> Category 2A (H320)   | <b>Environmental Hazards:</b> Not Classified   |
| <b>Skin Corrosion/Irritation:</b> Category 2 (H315)  | <b>OSHA Defined Hazards:</b> Combustible dust  |
| <b>LABEL ELEMENTS: Signal Word: Danger</b>   |  |
|    |  |
| <b>HAZARD STATEMENTS</b>   |  |
| -H301: Toxic, if swallowed<br>-H315: Causes skin irritation<br>-H320: Causes eye irritation  |  |
| <b>PRECAUTIONARY STATEMENTS</b>  |  |
| -Prevent dust accumulation to minimize explosion hazard<br>-P210: Keep away from heat, hot surface, sparks, open flames, and other ignition sources – No smoking.<br>-P233: Keep container tightly closed<br>-P240: Ground/bond container and receiving equipment<br>-P264: Wash face, hands, and any exposed skin thoroughly after handling<br>-P270: Do not eat, drink, or smoke when using this product<br>-P280: Wear protective gloves, protective clothing, eye protection and face protection<br>-P330: Rinse mouth<br>-P362+P364: Take off contaminated clothing and wash it before reuse<br>-P370+P378: In case of fire: use appropriate media to extinguish<br>-P403+P233: Store in a well-ventilated place. Keep container tightly closed.<br>-P405: Store locked up<br>-P501: Dispose of contents/container in accordance with local/regional/national/international regulations |  |
| <b>Hazards not otherwise classified (HNOC):</b>  |  |
| -None identified   |  |

| Section 3- COMPOSITION/INFORMATION ON INGREDIENTS |                  |                         |
|---|------------------|-------------------------|
| <b>COMPONENT</b>                                  | <b>CAS-No</b>    | <b>Molecular Weight</b> |
| <b>Sodium Fluoride</b>                            | <b>7681-49-4</b> | <b>41.988 g/mol</b>     |

## Section 4- FIRST AID MEASURES

**GENERAL ADVICE:** In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). If exposed or concerned, get medical advice/attention. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

**INHALATION:** Remove victim from exposure to fresh air. Give oxygen if breathing is difficult. If not breathing, give artificial respiration. Call a physician if symptoms develop or persist.

**SKIN CONTACT:** Immediately remove all contaminated clothing. Wash with plenty of soap and water. Call a physician or poison control center immediately. For minor skin contact, avoid spreading material on unaffected skin. Wash contaminated clothing before reuse.

**EYE CONTACT:** Do not rub eyes. Immediately, flush eyes with lukewarm water, lifting upper and lower lids, for at least 15 minutes. Remove contact lenses if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.

**INGESTION:** Call a physician or poison control center immediately. Rinse mouth with water. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content does not get into the lungs. Do not use mouth-to-mouth method if victim ingested substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Never give anything by mouth to an unconscious person.

**MOST IMPORTANT SYMPTOMS/EFFECTS:** The most important known symptoms and effects are described in the labeling (see section 2). May cause temporary blindness and severe eye damage. Narcosis. Nausea. Abdominal pain. Diarrhea. Behavioral changes. Decrease in motor functions. Corrosive effects. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Liver enlargement. Dusts may irritate the respiratory tract, skin, and eyes. Proteinuria. Skin irritation. May cause redness and pain. Edema. Jaundice. Prolonged exposure may cause chronic effects.

### **INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT**

**NEEDED:** Provide general supportive measures and treat symptomatically. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

## Section 5- FIREFIGHTING MEASURES

**Suitable Extinguishing Media:** Avoid high pressure media which could cause the formation of a potentially explosible dust-air mixture. Water Fog, Foam, Dry Chemical Powder, Carbon Dioxide (CO<sub>2</sub>). Apply extinguishing media carefully to avoid creating airborne dust.

**Unsuitable Extinguishing Media:** None known

**Specific Hazards Arising from the Chemical:** Explosive hazard. Avoid generating dust, fine dust dispersed in air in sufficient concentrations and in the presence of an ignition source is a potential dust explosion hazard.

**Protective Equipment & Precautions for Firefighters:** As in any fire, Firefighters must wear full face, self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective clothing to prevent contact with skin and eyes.

**Firefighting Instructions/Specific Methods:** Use standard firefighting procedures and consider the hazards of other involved materials. In case of fire and/or explosion do not breath fumes. Move containers from fire area if you can do so without risk. Use water spray to cool unopened containers. Water runoff can cause environmental damage.

**General Fire Hazards:** May form combustible dust concentrations in air.

## Section 6- ACCIDENTAL RELEASE MEASURES

**Personal Precautions:** Immediately evacuate personnel to safe areas. Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Use only non-sparking tools. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Wear appropriate protective equipment and clothing during clean-up. Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection see Section 8 of SDS.

**Environmental Precautions:** Avoid release to the environment. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground.

**Methods for Containment & Clean Up:** Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Take precautionary measures against static discharge. Use only non-sparking tools. Collect dust using a vacuum cleaner equipped with HEPA filter. Prevent entry into waterways, sewer, basements or confined areas.

-Large Spills: Wet down with water and dike for later disposal. Shovel the material into waste container. Following product recovery, flush area with water.

-Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal. Clean surface thoroughly to remove residual contamination.

-Never return spills to original containers for re-use.

-For waste disposal see Section 13.

## Section 7- HANDLING AND STORAGE

**Handling:** Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Minimize dust generation and accumulation. Avoid significant deposits of material, especially on horizontal surfaces, which may become airborne and form combustible dust clouds and may contribute to secondary explosions. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres. Keep away from heat/sparks/open flames/hot surfaces. No smoking. Explosion-proof general and local exhaust ventilation. Do not get this material in contact with eyes. Do not taste or swallow. Avoid breathing dust. Avoid contact with eyes, skin, and clothing. Avoid contact during pregnancy/while nursing. Avoid prolonged exposure. When using, do not eat, drink, or smoke. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Wash contaminated clothing before reuse. Avoid release to the environment. Do not empty into drains. Observe good industrial hygiene practices.

**Storage:** Store locked up. Store in original tightly closed container in a cool, dry, well-ventilated place out of direct sunlight. Store away from incompatible materials (see Section 10 of SDS).

## Section 8- EXPOSURE CONTROLS/PERSONAL PROTECTION

### Exposure Guidelines:

| Component       | CAS-No.   | Value | Control Parameters         | Basis   |
|-----------------|-----------|-------|----------------------------|---|
| Sodium Fluoride | 7681-49-4 | TWA   | 2.5 mg/m3                  | USA. ACGIH Threshold Limit Values (TLV)   |
|                 |           | TWA   | 2.5 mg/m3                  | USA. NIOSH Pocket Guide to Chemical Hazards Materials   |
|                 |           | TWA   | 2.5 mg/m3<br>(Form: Dust)  | USA.OSHA Table Z-2 (29 CFR 1910.1000)   |
|                 |           | PEL   | 2.5 mg/m3<br>(as fluoride) | USA. Occupational Exposure Limits (OSHA) Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) |
|                 |           | PEL   | 2.5 mg/m3                  | US California Code of Regulations, Title 8, Section 5155. Airborne Contaminants Material          |

### Biological Limit Values:

| Component       | CAS-No.   | Value  | Determinant | Specimen | Basis  |
|-----------------|-----------|--|-------------|----------|--|
| Sodium Fluoride | 7681-49-4 | 2 mg/l   | Fluoride    | Urine    | USA. ACGIH Biological Exposure Indices (BEI) |
|                 | Remarks   | Prior to shift (16 hours after exposure ceases)          |             |          |  |
|                 |           | 3 mg/l   | Fluoride    | Urine    | USA. ACGIH Biological Exposure Indices (BEI) |
|                 | Remarks   | End of shift (As soon as possible after exposure ceases) |             |          |  |

**Engineering Measures:** Explosion-proof general and local exhaust ventilation. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. It is recommended that all dust control equipment such as local exhaust ventilation and material transport systems involved in handling of this product contain explosion relief vents or an explosion suppression system or an oxygen-deficient environment. Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment). If engineering measures are not sufficient to maintain concentrations of dust particulates below the Occupational Exposure Limit (OEL), suitable respiratory protection must be worn. Use only appropriately classified electrical equipment and powered industrial trucks. Provide eyewash station and safety shower.

**General Hygiene:** Do not get this material on clothing. When using, do not eat, drink or smoke. Always observe good personal hygiene measures such as washing after handling the material and before eating, drinking and/or smoking. Wash hands before breaks and at the end of the workday. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.

**Personal Protective Equipment:**

**Eye/Face Protection:** Wear safety glasses with side shields or goggles. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

**Skin and Body Protection:** Handle with chemical resistant 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.

Wear appropriate chemical resistant protective clothing. Use of an impervious apron is recommended. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Respiratory Protection:** If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits.

**Thermal Hazards:** Wear appropriate thermal protective clothing when necessary.

**Section 9- PHYSICAL AND CHEMICAL PROPERTIES**

**Physical State:** Solid

**Odor:** Not available

**Odor Threshold:** Not available

**pH:** Not available

**Melting Point/Range:** 993°C (1819.4°F)

**Boiling Point/Range:** 1704°C (3099.2°F)

**Flash Point:** Not available

**Evaporation Rate:** Not available

**Flammability (solid,gas):** Not available

**Flammability or Exposure Limits:**

**Upper:** Not available

**Lower:** Not available

**Vapor Pressure:** Not available

**Vapor Density:** Not available

**Relative Density:** 2.78 g/cm<sup>3</sup> (estimated)

**Solubility (Water):** 40 g/l

**Partition coefficient; n-octanol/water:** Not available

**Auto Ignition Temperature:** Not available

**Decomposition Temperature:** Not available

**Viscosity:** No data available

**Explosive Properties:** Not available

**Oxidizing Properties:** Not available

## Section 10- STABILITY AND REACTIVITY

**Reactive Hazard:** Stable and non-reactive under normal conditions of use, storage, and transport.

**Stability:** Stable under normal conditions.

**Conditions to Avoid:** Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. Avoid temperature exceeding the decomposition temperature. Contact with incompatible materials. Minimize dust generation and accumulation.

**Incompatible Materials:** Strong oxidizing agents

**Hazardous Decomposition Products:** No data available

**Hazardous Polymerization:** No data available

**Hazardous Reactions:** No data available

## Section 11- TOXICOLOGICAL INFORMATION

### **Information on likely Routes of Exposure:**

**Inhalation:** Dust may irritate respiratory system. Prolonged inhalation may be harmful.

**Skin Contact:** Causes severe skin burns.

**Eye Contact:** Causes severe eye burns. Causes serious eye damage.

**Ingestion:** Fatal if swallowed. Causes digestive tract burns.

**Symptoms related to the physical, chemical and toxicological characteristics:** Narcosis. Nausea. Abdominal pain. Diarrhea. Behavioral changes. Decrease in motor functions. Burning pain and severe corrosive skin damage. Severe eye irritation. Liver enlargement. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Proteinuria. Permanent eye damage including blindness could result. Dusts may irritate the respiratory tract, skin, and eyes. Edema. Jaundice.

### **Information on Toxicological Effects:**

**Acute Toxicity:** Fatal if swallowed. Causes severe skin burns and eye damage. May cause respiratory irritation.

**Skin Corrosion/Irritation:** Causes severe skin burns.

**Serious eye damage/irritation:** Causes severe eye damage. Causes serious eye damage.

**Respiratory or Skin Sensitization:** Due to lack of data the classification is not possible

**Carcinogenicity:** This product is not considered to be a carcinogen by IARC, ACGIH, NTP or OSHA

**Germ Cell Mutagenicity:** Suspected of causing genetic defects.

**Reproductive Effects:** Suspected of damaging fertility or the unborn child.

**Development Effects:** Due to lack of data the classification is not possible

**Specific Target Organ Toxicity – single exposure:** Causes damage to organs. Respiratory tract irritation.

**Specific Target Organ Toxicity – repeated exposure:** Causes damage to organs through prolonged or repeated exposure.

**Aspiration Hazard:** Due to lack of data the classification is not possible

**Chronic Effects:** Prolonged inhalation may be harmful. Causes damage to organs through prolonged or repeated exposure.

**-To the best of our knowledge, the chemical, physical and toxicological properties have not been thoroughly investigated.**

## Section 12- ECOLOGICAL INFORMATION

**Toxicity:** Harmful to aquatic life with long lasting effects. Accumulation in aquatic organisms is expected.

**Toxicity to fish:** LC50-Rainbow trout, Donaldson trout (*Oncorhynchus mykiss*) – 83.7-138 mg/l – 96.0 h

**Toxicity to daphnia and other aquatic invertebrates:** EC50-Daphnia magna (water flea) – 98 mg/l – 48 h

**Persistence and Degradability:** No information available

**Bioaccumulation/Accumulation:** No information available

**Mobility in Soil:** No information available

**Results of PBT and vPvB assessment:** PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

**Other Adverse Effects:** No information available

## Section 13- DISPOSAL CONSIDERATIONS

**Waste Disposal Methods:** Collect and reclaim or dispose in sealed containers at a licensed waste disposal site. Dispose of empty containers and contaminated packaging as unused product. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways, or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

## Section 14- TRANSPORT INFORMATION

### DOT:

**UN-No:** UN1690

**Proper Shipping Name:** Sodium Fluoride, solid

**Hazard Class:** 6.1

**Packing Group:** III

**Special Precautions for User:** Read safety instructions, SDS and emergency procedures before handling.

**Special Provisions:** IB3, T4, TP1

**Packaging Non-Bulk:** 203

**Packaging Bulk:** 241

### IATA:

**UN-No:** UN1690

**Proper Shipping Name:** Sodium Fluoride, solid

**Hazard Class:** 6.1

**Packing Group:** III

**Environmental Hazards:** No

**ERG Code:** 6L

**Special Precautions for Use:** Read safety instructions, SDS and emergency procedures before handling.

**Passenger and Cargo Aircraft:** Allowed with restrictions

**Cargo Aircraft Only:** Allowed with restrictions

### IMDG/IMO:

**UN-No:** UN1690

**Proper Shipping Name:** Sodium Fluoride, solid

**Hazard Class:** 6.1

**Packing Group:** III

**Environmental Hazards-Marine Pollutant:** No

**EMS-No:** F-A, S-A

**Special Precautions for Use:** Read safety instructions, SDS and emergency procedures before handling.

## Section 15- REGULATORY INFORMATION

### US Federal Regulations:

All components are on the U.S. EPA TSCA Inventory List.

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

**TSCA Section 12(b) Export Notification (40 CFR 707, Subpt.D):** Not Regulated

**U.S. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053):** Not Regulated

**CERCLA Hazardous Substance List (40 CFR 302.4):** Sodium Fluoride (CAS-No: 7681-49-4) - Listed

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

**SARA 304 Emergency Release Notification:** Not Regulated

**SARA 311/312 Hazards:** Yes

|                                     |  |
|-------------------------------------|--|
| <b>Classified Hazard Categories</b> | Acute toxicity (any route of exposure) |
|                                     | Skin corrosion or irritation           |
|                                     | Serious eye damage or eye irritation   |

**SARA 313:** 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

**Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List:** Not regulated

**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):** Not regulated

**Clean Water Act (CWA) Section 112(r) (40 CFR 68.130):** Hazardous substance

**Safe Drinking Water Act (SDWA):** Contains component(s) regulated under the Safe Drinking Water Act

**US Massachusetts Right to Know Components:** Sodium Fluoride (CAS No. 7681-49-4)

**US New Jersey Right to Know Components:** Sodium Fluoride (CAS No. 7681-49-4)

**US Pennsylvania Right to Know Components:** Sodium Fluoride (CAS No. 7681-49-4)

**US California Proposition 65:** This product does not contain any chemicals known to the State of California to cause cancer, birth defects or any other reproductive harm.

## Section 16- OTHER INFORMATION

The above information is accurate to the best of our knowledge. However, since data, safety standards and government regulations are subject to change, the conditions of handling and use, or misuse are beyond our control, Plasmaterials, Inc. makes no warranty, either expressed or implied, with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. Users should satisfy themselves that they have all current data relevant to their particular use.

The information in this SDS was obtained from sources, which we believe are reliable. However, the information is provided without any representation or warranty, expressed 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.

REVISION: 08-12-2020