1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Sodium fluoride
Product Number: 201154
Brand: Sigma-Aldrich
Supplier: Sigma-Aldrich Corporation
3050 Spruce Street
SAINT LOUIS MO  63103
USA
Telephone: +1 800-325-5832
Fax: +1 800-325-5052
Emergency Phone #: (314) 776-6555
Preparation Information: Sigma-Aldrich Corporation
Product Safety - Americas Region
1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Target Organ Effect, Highly toxic by ingestion, Irritant

Target Organs
Kidney, Heart, Bone, Nerves., Gastrointestinal tract, Teeth., Damage to the lungs.
Kidney, Heart, Bone, Nerves., Gastrointestinal tract, Teeth., Damage to the lungs.

GHS Classification
Acute toxicity, Oral (Category 2)
Skin irritation (Category 2)
Eye irritation (Category 2A)
Acute aquatic toxicity (Category 3)

GHS Label elements, including precautionary statements

Pictogram

Signal word: Danger

Hazard statement(s)
H300    Fatal if swallowed.
H315    Causes skin irritation.
H319    Causes serious eye irritation.
H402    Harmful to aquatic life.

Precautionary statement(s)
P264    Wash hands thoroughly after handling.
P301 + P310   IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P305 + P351 + P338   IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Other hazards
Contact with acids liberates very toxic gas.
HMIS Classification
Health hazard: 3
Chronic Health Hazard: *
Flammability: 0
Physical hazards: 0

NFPA Rating
Health hazard: 3
Fire: 0
Reactivity Hazard: 0

Potential Health Effects

<table>
<thead>
<tr>
<th>Category</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhalation</td>
<td>May be harmful if inhaled. Causes respiratory tract irritation.</td>
</tr>
<tr>
<td>Skin</td>
<td>May be harmful if absorbed through skin. Causes skin irritation.</td>
</tr>
<tr>
<td>Eyes</td>
<td>Causes eye irritation.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>May be fatal if swallowed.</td>
</tr>
</tbody>
</table>

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium fluoride</td>
<td></td>
</tr>
<tr>
<td>CAS-No.</td>
<td>7681-49-4</td>
</tr>
<tr>
<td>EC-No.</td>
<td>231-667-8</td>
</tr>
<tr>
<td>Index-No.</td>
<td>009-004-00-7</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

Hydrofluoric (HF) acid burns require immediate and specialized first aid and medical treatment. Symptoms may be delayed up to 24 hours depending on the concentration of HF. After decontamination with water, further damage can occur due to penetration/absorption of the fluoride ion. Treatment should be directed toward binding the fluoride ion as well as the effects of exposure. Skin exposures can be treated with a 2.5% calcium gluconate gel repeated until burning ceases. More serious skin exposures may require subcutaneous calcium gluconate except for digital areas unless the physician is experienced in this technique, due to the potential for tissue injury from increased pressure. Absorption can readily occur through the subungual areas and should be considered when undergoing decontamination. Prevention of absorption of the fluoride ion in cases of ingestion can be obtained by giving milk, chewable calcium carbonate tablets or Milk of Magnesia to conscious victims. Conditions such as hypocalcemia, hypomagnesemia and cardiac arrhythmias should be monitored for, since they can occur after exposure.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

Conditions of flammability
Not flammable or combustible.

Suitable extinguishing media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Dry powder

Special protective equipment for firefighters
Wear self contained breathing apparatus for fire fighting if necessary.
Hazardous combustion products
Hazardous decomposition products formed under fire conditions. - Hydrogen fluoride, Sodium oxides

Further information
The product itself does not burn.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Do not flush with water. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place. Never allow product to get in contact with water during storage. Do not store near acids. Moisture sensitive. Keep in a dry place.

8. EXPOSURE CONTROLS/PERSO NAL PROTECTION

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
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</thead>
<tbody>
<tr>
<td>Sodium fluoride</td>
<td>7681-49-4</td>
<td>TWA</td>
<td>2.5 mg/m³</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants</td>
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<tr>
<td></td>
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<td>TWA 2.5 mg/m³</td>
<td>USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000</td>
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<tr>
<td></td>
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<td>TWA 2.5 mg/m³</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
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<tr>
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<td>TWA 2.5 mg/m³</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z2</td>
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<tr>
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<td>TWA 2.5 mg/m³</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
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<td>TWA 2.5 mg/m³</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants</td>
</tr>
<tr>
<td>Remarks</td>
<td>CAS number varies with compound</td>
<td></td>
<td></td>
<td></td>
</tr>
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</table>

Bone damage Fluorosis Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen varies
Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
Handle with 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.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Eye protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
Form powder
Colour white

Safety data
pH no data available
Melting point/freezing point Melting point/range: 993 °C (1,819 °F)
Boiling point no data available
Flash point no data available
Ignition temperature no data available
Auto-ignition temperature no data available
Lower explosion limit no data available
Upper explosion limit no data available
Vapour pressure 1.9 hPa (1.4 mmHg)
Density 2.780 g/cm³
Water solubility no data available
Partition coefficient: n-octanol/water no data available
Relative vapour density no data available
Odour no data available
Odour Threshold no data available
Evaporation rate no data available

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
no data available

Conditions to avoid
Exposure to moisture.

Materials to avoid
Strong acids

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Hydrogen fluoride, Sodium oxides
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD₅₀
LD₅₀ Oral - rat - 31 mg/kg
LD₅₀ Oral - mouse - 44 mg/kg
LD₅₀ Oral - rabbit - 200 mg/kg
LD₅₀ Oral - Domestic Animals - 100 mg/kg
LD₅₀ Oral - Bird (wild) - 110 mg/kg
TDLo Oral - Human - 0.214 mg/kg
TDLo Oral - Human - 3.57 mg/kg
Remarks: Gastrointestinal:Changes in structure or function of salivary glands. Gastrointestinal:Other changes.
TDLo Oral - Human - male - 1,662 mg/kg
TDLo Oral - Human - female - 7 mg/kg
Remarks: Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Eye:Ptosis. Cyanosis
TDLo Oral - mouse - 0.0084 mg/kg
Remarks: Gastrointestinal:Decreased motility or constipation.
TDLo Oral - mouse - 0.034 mg/kg
LDLO Oral - Human - 71 mg/kg
LDLO Oral - Human - 32 mg/kg
LDLO Oral - Human - 0.07 mg/kg
Remarks: Cardiac:Arrhythmias (including changes in conduction). Peripheral Nerve and Sensation:Recording from peripheral motor nerve.

LDLO Oral - Human - female - 90 mg/kg

LDLO Oral - Human - female - 360 mg/kg
Remarks: Cyanosis

**Inhalation LC50**
no data available

**Dermal LD50**
no data available

**Other information on acute toxicity**

TDLo Intradermal - Human - 0.014 mg/kg

TDLo Parenteral - rat - 9 mg/kg
Remarks: Endocrine:Hyperglycemia. Blood:Changes in serum composition (e.g., TP, bilirubin, cholesterol). Biochemical:Enzyme inhibition, induction, or change in blood or tissue levels:Hepatic microsomal mixed oxidase (dealkylation, hydroxylation, etc.).

TDLo Parenteral - rat - 35 mg/kg

LDLO Subcutaneous - rabbit - 100 mg/kg

LDLO Subcutaneous - guinea pig - 100 mg/kg

LDLO Intraperitoneal - dog - 50 mg/kg

LDLO Subcutaneous - dog - 155 mg/kg

LDLO Subcutaneous - cat - 14 mg/kg

LD50 Intraperitoneal - rat - 22 mg/kg

LD50 Intravenous - rat - 26 mg/kg

Remarks: Nutritional and Gross Metabolic:Weight loss or decreased weight gain.

LD50 Subcutaneous - rat - 175 mg/kg

LD50 Intraperitoneal - mouse - 38 mg/kg

Remarks: Gastrointestinal:Other changes. Liver:Other changes. Kidney, Ureter, Bladder:Other changes.

LD50 Intravenous - mouse - 50.83 mg/kg


LD50 Subcutaneous - mouse - 0.115 mg/kg

LD50 Intravenous - Monkey - 26.6 mg/kg

**Skin corrosion/irritation**

**Serious eye damage/eye irritation**

Eyes - rabbit - Eye irritation - 24 h
Remarks: Moderate eye irritation

**Respiratory or skin sensitisation**

no data available

**Germ cell mutagenicity**

no data available

**Carcinogenicity**
This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

**IARC:**
3 - Group 3: Not classifiable as to its carcinogenicity to humans (Sodium fluoride)

3 - Group 3: Not classifiable as to its carcinogenicity to humans (Sodium fluoride)

**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.

**Reproductive toxicity**

no data available

**Teratogenicity**

no data available

**Specific target organ toxicity - single exposure (Globally Harmonized System)**
no data available

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**
no data available

**Aspiration hazard**
no data available

**Potential health effects**

- **Inhalation**
  May be harmful if inhaled. Causes respiratory tract irritation.

- **Ingestion**
  May be fatal if swallowed.

- **Skin**
  May be harmful if absorbed through skin. Causes skin irritation.

- **Eyes**
  Causes eye irritation.

**Signs and Symptoms of Exposure**
prolonged or repeated exposure can cause; Damage to the lungs.

**Synergistic effects**
no data available

**Additional Information**
RTECS: WB0350000

### 12. ECOLOGICAL INFORMATION

**Toxicity**

- **Toxicity to fish**
  - mortality NOEC - Cyprinodon variegatus (sheepshead minnow) - 500 mg/l - 96 h
  - LC50 - Oncorhynchus mykiss (rainbow trout) - 200 mg/l - 96 h

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

**Persistence and degradability**

**Bioaccumulative potential**

- **Bioaccumulation**
  Salmo trutta - 10 d
  Bioconcentration factor (BCF): 2.3
Mobility in soil
no data available

PBT and vPvB assessment
no data available

Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life.
no data available

13. DISPOSAL CONSIDERATIONS

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1690  Class: 6.1  Packing group: III
Proper shipping name: Sodium fluoride, solid
Reportable Quantity (RQ): 1000 lbs
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN number: 1690  Class: 6.1  Packing group: III  EMS-No: F-A, S-A
Proper shipping name: SODIUM FLUORIDE, SOLID
Marine pollutant: No

IATA
UN number: 1690  Class: 6.1  Packing group: III
Proper shipping name: Sodium fluoride, solid

15. REGULATORY INFORMATION

OSHA Hazards
Target Organ Effect, Highly toxic by ingestion, Irritant

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

SARA 313 Components
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.

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

<table>
<thead>
<tr>
<th>Substance</th>
<th>CAS-No.</th>
<th>Revision Date</th>
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<tbody>
<tr>
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<td>2007-03-01</td>
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Pennsylvania Right To Know Components

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</table>
New Jersey Right To Know Components

Sodium fluoride

CAS-No. 7681-49-4

Revision Date 2007-03-01

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Further information
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