

# SAFETY DATA SHEET

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## SECTION 1. IDENTIFICATION

**Product Name:** Zinc Fluoride

**CAS #:** 7783-49-5

**Relevant identified uses of the substance:** Scientific research and development

**Supplier details:**

Stanford Advanced Materials

E-mail: [sales@samaterials.com](mailto:sales@samaterials.com)

Tel: (949) 407-8904

Address: 23661 Birtcher Dr., Lake Forest, CA 92630 U.S.A.

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## SECTION 2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 4), H302

Acute toxicity, Inhalation (Category 4), H332

Skin irritation (Category 2), H315

Short-term (acute) aquatic hazard (Category 3), H402

Long-term (chronic) aquatic hazard (Category 2), H411

GHS Label elements, including precautionary statements

Pictogram

Signal word Warning

Hazard statement(s)

H302 + H332 Harmful if swallowed or if inhaled.

H315 Causes skin irritation.

H402 Harmful to aquatic life.

H411 Toxic to aquatic life with long lasting effects.

Precautionary statement(s)P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.

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.

P273 Avoid release to the environment.

P280 Wear protective gloves.

P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.

P332 + P313 If skin irritation occurs: Get medical advice/ attention.

P362 Take off contaminated clothing and wash before reuse.

P391 Collect spillage.

P501 Dispose of contents/ container to an approved waste disposal plant.

Hazards not otherwise classified (HNOC) or not covered by GHS

Strong hydrogen fluoride-releaser

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## **SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Substances

Formula : F2Zn

Molecular weight : 103.39 g/mol

CAS-No. : 7783-49-5

EC-No. : 232-001-9

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## SECTION 4. FIRST AID MEASURES

### Description of first-aid measures

#### General advice

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. Show this material safety data sheet to the doctor in attendance.

#### If inhaled

After inhalation: fresh air. If breathing stops: mouth-to-mouth breathing or artificial respiration. Oxygen if necessary. Immediately call in physician.

#### In case of skin contact

First treatment with calcium gluconate paste. In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

In case of eye contact After eye contact: rinse out with plenty of water. Remove contact lenses.

#### If swallowed

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

#### Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section

2) and/or in section 11

Indication of any immediate medical attention and special treatment needed

No data available

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## **SECTION 5. FIREFIGHTING MEASURES**

Extinguishing media

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

Special hazards arising from the substance or mixture

Hydrogen fluoride

Zinc/zinc oxides

Not combustible.

Ambient fire may liberate hazardous vapours.

Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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## **SECTION 6. ACCIDENTAL RELEASE MEASURES**

Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact.

Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

For personal protection see section 8.

Environmental precautions

Do not let product enter drains.

Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

Reference to other sections

For disposal see section 13.

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## **SECTION 7. HANDLING AND STORAGE**

Precautions for safe handling

Advice on safe handling Work under hood. Do not inhale substance/mixture.

Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

For precautions see section 2.

Conditions for safe storage, including any incompatibilities

Storage conditions

Tightly closed. Dry.

Do not store in glass

Storage class

Storage class (TRGS 510): 13: Non Combustible Solids

Specific end use(s)

Apart from the uses mentioned in section 1 no other specific uses are stipulated

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## **SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

Exposure controls

Appropriate engineering controls

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection

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

Body Protection

protective clothing

Respiratory protection

required when dusts are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure

Do not let product enter drains.

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## **SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Information on basic physical and chemical properties

a) Appearance Form: powder

Color: white

b) Odor No data available

c) Odor Threshold No data available

d) pH No data available

e) Melting point/freezing point

Melting point/range: 872 °C (1602 °F) - lit.

f) Initial boiling point and boiling range

1,500 °C 2,732 °F at 1,013.5 hPa - (ECHA)

g) Flash point ( )Not applicable

h) Evaporation rate No data available

i) Flammability (solid, gas)

The product is not flammable.

j) Upper/lower flammability or explosive limitsNo data available

k) Vapor pressure 1 hPa at 970 °C (1778 °F)

l) Vapor density No data available

m) Density 4.95 g/cm<sup>3</sup> at 25 °C (77 °F) - lit.

Relative density No data available

n) Water solubility 27.2 g/l at 25 °C (77 °F)

o) Partition coefficient: n-octanol/water

No data available

p) Autoignition temperature

No data available

q) Decomposition temperature

No data available

r) Viscosity No data available

s) Explosive properties No data available

t) Oxidizing properties none

Other safety information

No data available

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## **SECTION 10. STABILITY AND REACTIVITY**

Reactivity

No data available

Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

Possibility of hazardous reactions

No data available

Conditions to avoid

Reacts dangerously with glass.

no information available

Incompatible materials

glass

Hazardous decomposition products

In the event of fire: see section 5

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## SECTION 11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - male - 1,100 mg/kg

(OECD Test Guideline 401)

Remarks: (in analogy to similar products)

The value is given in analogy to the following substances: zinc chloride

LC50 Inhalation - Rat - female - 10 min -  $\leq$  1,975 mg/m<sup>3</sup>

Remarks: (ECHA)

(in analogy to similar products)

LD50 Dermal - Rat - male and female -  $>$  2,000 mg/kg

(OECD Test Guideline 402)

Remarks: (in analogy to similar products)

The value is given in analogy to the following substances: Zinc sulphate

No data available

Skin corrosion/irritation Causes skin irritation.

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitization

Local lymph node assay (LLNA) - Mouse

Result: Not a skin sensitizer.



Remarks: (ECHA)

Germ cell mutagenicity

No data available

Test Type: Ames test

Test system: S. typhimurium

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

Result: negative

Test Type: Micronucleus test

Species: Mouse

Application Route: Intraperitoneal

Result: negative

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: No ingredient 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 ingredient 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 on OSHA's list of regulated carcinogens.

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

## Additional Information

Repeated dose toxicity - Rat - male and female - Oral

RTECS: ZH3500000

Fluoride ion can reduce serum calcium levels possibly causing fatal hypocalcemia.

Salivation, Nausea, Vomiting, Fever, Cough, Shortness of breath, Headache, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

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## SECTION 12. ECOLOGICAL INFORMATION

### Toxicity

Toxicity to fish static test LC50 - *Oncorhynchus mykiss* (rainbow trout) - 0.169 mg/l  
- 96 h

Remarks: (ECHA)

(in analogy to similar products)

### Toxicity to daphnia

and other aquatic invertebrates static test EC50 - *Ceriodaphnia dubia* (water flea) - 0.155 mg/l - 48h

Remarks: (ECHA)

Toxicity to algae static test NOEC - *Pseudokirchneriella subcapitata* (green algae) -  
0.0049 mg/l - 72 h

(OECD Test Guideline 201)

Remarks: (in analogy to similar products)

The value is given in analogy to the following substances: zinc chloride

Toxicity to bacteria static test EC50 - activated sludge - 5.2 mg/l - 3 h

(OECD Test Guideline 209)

### Persistence and degradability

No data available

### Bioaccumulative potential

No data available

### Mobility in soil

No data available

Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

Other adverse effects

No data available

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## **SECTION 13. DISPOSAL CONSIDERATIONS**

Waste treatment methods

Product

Waste material must be disposed of in accordance with the national and local regulations.

Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

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## **SECTION 14. TRANSPORT INFORMATION**

DOT (US)

UN number: 3077 Class: 9 Packing group: III

Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (zinc fluoride)

Reportable Quantity (RQ): 1000 lbs

Poison Inhalation Hazard: No

IMDG

Not dangerous goods

IATA

Not dangerous goods

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## **SECTION 15. REGULATORY INFORMATION**

## SARA 302 Components

This material does not contain any components with a section 302 EHS TPQ.

## SARA 313 Components

The following components are subject to reporting levels established by SARA Title III,

Section 313:

SARA 311/312 Hazards Acute Health Hazard

Massachusetts Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

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## **SECTION 16. OTHER INFORMATION**

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH). The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.