

# SAFETY DATA SHEET

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## SECTION 1. IDENTIFICATION

**Product Identifier:** (2N) 99% Nickel Fluoride

**Product Code:** NI-F-02

**CAS Number:** 10028-18-9

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

Supplier details:

American Elements  
10884 Weyburn Ave.  
Los Angeles, CA 90024  
Tel: +1 310-208-0551  
Fax: +1 310-208-0351  
Emergency telephone number:  
+1 800-424-9300

## SECTION 2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

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

Acute toxicity, Oral (Category 3), H301

Acute toxicity, Inhalation (Category 3), H331

Skin irritation (Category 2), H315

Serious eye damage (Category 1), H318

Respiratory sensitization (Category 1), H334

Skin sensitization (Category 1), H317

Carcinogenicity, Inhalation (Category 1B), H350i

Reproductive toxicity (Category 1B), H360

Specific target organ toxicity - repeated exposure, Inhalation (Category 1), Respiratory Tract, H372



Signal word Danger

Hazard statement(s)

H301 + H331 Toxic if swallowed or if inhaled.

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H318 Causes serious eye damage.  
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
H350i May cause cancer by inhalation.  
H360 May damage fertility or the unborn child.  
H372 Causes damage to organs (Respiratory Tract) through prolonged or repeated exposure if inhaled.  
Precautionary statement(s)  
P201 Obtain special instructions before use.  
P202 Do not handle until all safety precautions have been read and understood.  
P260 Do not breathe 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.  
P272 Contaminated work clothing must not be allowed out of the workplace.  
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.  
P285 In case of inadequate ventilation wear respiratory protection.  
P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.  
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.  
P304 + P340 + P311 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor.  
P305 + P351 + P338 +  
P310  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.  
P308 + P313 IF exposed or concerned: Get medical advice/ attention.  
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.  
P362 Take off contaminated clothing and wash before reuse.  
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.  
P405 Store locked up.  
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**

Formula : F2Ni  
Molecular weight : 96.69 g/mol  
CAS-No. : 10028-18-9  
EC-No. : 233-071-3

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

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration.

Consult a physician.

In case of skin contact

First treatment with calcium gluconate paste. 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. Continue rinsing eyes during transport to hospital.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. 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 2.2) 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 water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special hazards arising from the substance or mixture

Hydrogen fluoride, Nickel/nickel oxides

Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

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

Personal precautions, protective equipment and emergency procedures

Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas.

Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

For personal protection see section 8.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Methods and materials for containment and cleaning up  
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

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

Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.

Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

Keep in a dry place. Do not store in glass. Keep in a dry place.

Storage class (TRGS 510): 6.1D: Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

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

Appropriate engineering controls

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

Personal protective equipment

Eye/face 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 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.

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.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a fullface 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).

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

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

Appearance Form: powder

Odor odorless

Odor Threshold No data available  
pH No data available  
Melting point/freezing point No data available  
Initial boiling point and boiling range No data available  
Flash point ( )Not applicable  
Evaporation rate No data available  
Flammability (solid, gas) The product is not flammable.  
Upper/lower flammability or explosive limits No data available  
Vapor pressure No data available  
Vapor density No data available  
Relative density 4.72 g/cm<sup>3</sup> at 25 °C (77 °F)  
Water solubility ca.40 g/l at 25 °C (77 °F) - soluble  
Partition coefficient: n-octanol/water No data available  
Autoignition temperature No data available  
Decomposition temperature No data available  
Viscosity No data available  
Explosive properties No data available  
Oxidizing properties No data available

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## SECTION 10. STABILITY AND REACTIVITY

Reactivity  
No data available  
Chemical stability  
Stable under recommended storage conditions.  
Possibility of hazardous reactions  
No data available  
Conditions to avoid  
Reacts dangerously with glass.  
Incompatible materials glass  
Hazardous decomposition products  
Hazardous decomposition products formed under fire conditions. - Hydrogen fluoride,  
Nickel/nickel oxides

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## SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity  
LD50 Oral - Rat - female - 178 mg/kg  
(OECD Test Guideline 425)  
Inhalation: No data available  
LD50 Dermal - Rat - male - > 100 mg/kg  
Remarks: (ECHA)  
No data available  
Skin corrosion/irritation  
Skin - Rabbit  
Result: Irritating to skin. - 4 h  
(OECD Test Guideline 404)  
Serious eye damage/eye irritation  
Eyes - Rabbit  
Result: Causes serious eye damage.  
(OECD Test Guideline 405)

Respiratory or skin sensitization

Maximization Test - Guinea pig

Result: positive

(OECD Test Guideline 406)

Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

May cause allergy or asthma symptoms or breathing difficulties if inhaled. Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Germ cell mutagenicity

Suspected of causing genetic defects.

In vitro mammalian cell gene mutation test

mouse lymphoma cells

Result: positive

OECD Test Guideline 474

Rat - male

Result: negative

Carcinogenicity

Positive evidence from human epidemiological studies (inhalation)

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Nickel(2+) fluoride)

1 - Group 1: Carcinogenic to humans (Nickel(2+) fluoride)

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

May damage the unborn child.

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

Inhalation - Causes damage to organs through prolonged or repeated exposure. -

Respiratory Tract

Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Aspiration hazard

No data available

Additional Information

RTECS: QR6825000

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

Salivation, Nausea, Vomiting, Fever, Dermatitis, Gastrointestinal disturbance, Material reacts with moisture on the skin, eyes, and mucous membranes to generate hydrogen fluoride. Hydrogen fluoride is extremely destructive and may cause deep progressive burns that induce subcutaneous tissues to become blanched and bloodless resulting in lesions of dead tissue that are slow to heal.

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

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

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## SECTION 12. ECOLOGICAL INFORMATION

Toxicity

Toxicity to fish semi-static test LC50 - *Oncorhynchus mykiss* (rainbow trout) - 15.3 mg/l - 96 h

Remarks: (ECHA)

Toxicity to daphnia  
and other aquatic  
invertebrates static test LC50 - Ceriodaphnia dubia (water flea) - 0.074 mg/l - 48h  
(US-EPA)  
Toxicity to algae static test ErC50 - Pseudokirchneriella subcapitata - > 0.0815 - <  
0.148 mg/l - 72 h  
(OECD Test Guideline 201)  
Toxicity to bacteria EC50 - activated sludge - 33 mg/l - 30 min  
(ISO 8192)  
Persistence and degradability  
The methods for determining biodegradability are not applicable to inorganic substances.  
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

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## **SECTION 13. DISPOSAL CONSIDERATIONS**

Waste treatment methods  
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.

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## **SECTION 14. TRANSPORT INFORMATION**

DOT (US)  
UN number: 3288 Class: 6.1 Packing group: III  
Proper shipping name: Toxic solid, inorganic, n.o.s. (Nickel(2+) fluoride)  
Reportable Quantity (RQ):  
Poison Inhalation Hazard: No  
IMDG  
UN number: 3288 Class: 6.1 Packing group: III EMS-No: F-A, S-A  
Proper shipping name: TOXIC SOLID, INORGANIC, N.O.S. (Nickel(2+) fluoride)  
Marine pollutant : yes  
IATA  
UN number: 3288 Class: 6.1 Packing group: III  
Proper shipping name: Toxic solid, inorganic, n.o.s. (Nickel(2+) fluoride)

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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:

Nickel(2+) fluoride

CAS-No.

10028-18-9

SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

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

Pennsylvania Right To Know Components

Nickel(2+) fluoride CAS-No.

10028-18-9

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## 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. American Elements shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. COPYRIGHT 1997-2022 AMERICAN ELEMENTS. LICENSED GRANTED TO MAKE UNLIMITED PAPER COPIES FOR INTERNAL USE ONLY.