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### 1. Product and Company Identification

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Trade Name: Nickel iron  
Chemical Formula: Ni-Fe  
Recommended Use: Scientific research and development

Manufacturer/Supplier: Stanford Advanced Materials  
Address: 23661 Birtcher Dr.,  
Lake Forest, CA 92630 U.S.A.  
Tel: (949) 407-8904

24-Hour Emergency Contact: (949) 407-8904  
(This telephone number is available 24 hours per day, 7 days per week.)

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### 2. Hazards Identification

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Signal Word: Danger



Hazard Statements:

- H228: Flammable solid
- H252: Self-heating in large quantities; may catch fire
- H317: May cause an allergic skin reaction
- H351: Suspected of causing cancer
- H372: Causes damage to organs through prolonged or repeated exposure
- H319: Causes serious eye irritation
- H335: May cause respiratory irritation
- H412: Harmful to aquatic life with long lasting effects

Precautionary Statements:

- P202: Do not handle until all safety precautions have been read and understood
- P210: Keep away from heat/sparks/open flames/hot surfaces – No Smoking
- P235 + P410: Keep cool. Protect from sunlight
- P240: Ground/bond container and receiving equipment
- P241: Use explosion-proof electrical/ventilating/light/equipment
- P260: Do not breathe dust/fume/gas/mist/vapors/spray
- P264: Wash face, hands, and any exposed skin thoroughly after handling
- P270: Do not eat, drink, or smoke when using this product
- P272: Contaminated work clothing should not be allowed out of the workplace
- P273: Avoid release to the environment.
- P280: Wear protective gloves/protective clothing/eye protection/face protection

P281: Use personal protective equipment as required  
 P363: Wash contaminated clothing before reuse  
 P302+P350: IF ON SKIN: Gently wash with plenty of soap and water  
 P308+P313: IF exposed or concerned: Get medical advice/attention  
 P332+P313: If skin irritation occurs: Get medical advice/attention  
 P370+P378: In case of fire: Use dry sand, dry chemical, or foam for  
 Extinction  
 P403 + P235: Store in a well-ventilated place. Keep cool  
 P405: Store locked up  
 P407: Maintain air gap between stacks/ pallets  
 P420: Store away from other materials  
 P501 Dispose of contents/container in accordance with  
 local/regional/national/international regulations

HMIS Health Ratings (0-4):	Powder	Bulk
Health:	2	0
Flammability:	2	0
Physical:	1	0

### 3. Composition

Chemical Family:	Metal alloy
Additional Names:	None
Nickel (Ni):	
Percentage:	0-100 wt%
CAS #:	7440-02-0
EC #:	231-157-5
Iron (Fe):	
Percentage:	0-100 wt%
CAS #:	7439-89-6
EC #:	231-096-4

### 4. First Aid Procedures

General Treatment:	Seek medical attention if symptoms persist.
Special Treatment:	None
Important Symptoms:	None
Inhalation:	Remove victim to fresh air. Supply oxygen if breathing is difficult.
Ingestion:	Seek medical attention.
Skin:	Wash affected area with mild soap and water. Remove any contaminated clothing.
Eyes:	Flush eyes with water, blinking often for several minutes. Remove contact lenses if present and easy to do. Continue rinsing

### 5. Firefighting Measures

Flammability:	Non-flammable, except as powder
Extinguishing Media:	Do not use water for metal fires – use CO <sub>2</sub> , sand, extinguishing powder.
Spec. Fire Fighting Procedure:	Use full-face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes. See section 10 for decomposition products.

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## 6. Accidental Release Measures

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If Material Is Released/Spilled:	Wear appropriate respiratory and protective equipment specified in special protection information. Isolate spill area and provide ventilation. Vacuum up spill using a high efficiency particulate absolute (HEPA) air filter and place in a closed container for disposal. Take care not to raise dust.
Environmental Precautions:	Isolate runoff to prevent environmental pollution.

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## 7. Handling and Storage

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Handling Conditions:	Wash thoroughly after handling.
Storage Conditions:	Store in a cool dry place in a tightly sealed container. Store apart from materials and conditions listed in section 10.
Work/Hygienic Maintenance:	Do not use tobacco or food in work area. Wash thoroughly before eating and smoking. Do not blow dust off clothing or skin with compressed air.
Ventilation:	Provide sufficient ventilation to maintain concentration at or below threshold limit.

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## 8. Exposure Controls and Personal Protection

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Permissible Exposure Limits:	0.5 mg/m <sup>3</sup> as Ni, long-term value
Threshold Limit Value:	1.5 mg/m <sup>3</sup> as Ni, long-term value
Special Equipment:	None
Respiratory Protection:	Use a respirator with type P100 (USA) or P3 (EN143) cartridges as a backup to engineering controls. Risk assessment should be performed to determine if air-purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards.
Protective Gloves:	Butyl rubber gloves
Eye Protection:	Safety glasses or goggles
Body Protection:	Protective work clothing. Wear close-toed shoes and long sleeves/pants.

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## 9. Physical and Chemical Characteristics

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Color	Silver
Form:	Powder, Sputtering target
Odor:	Odorless
Water Solubility:	Insoluble
Boiling Point:	N/A
Melting Point:	N/A
Flash Point:	N/A
Autoignition Temperature:	N/A
Density:	N/A
Molecular weight:	N/A

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## 10. Reactivity

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Stability:	Stable under recommended storage conditions
Reacts With:	Acids, Oxidizing agents, Sulfur compounds, Hydrogen gas, Oxygen, Methanol, organic solvents, Aluminum, Fluorine, Ammonia, Halogenated agents, Halogens, Nitriles, Aldehydes
Incompatible Conditions:	Protect against electrostatic charges, Avoid dust formation, Excess heat, Exposure to moist air or water
Hazardous Decomposition Products:	Nickel oxides, Iron oxides, Hydrogen

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## 11. Toxicological Information

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### Potential Health Effects:

Eyes:	May cause irritation
Skin:	May cause an allergic skin reaction
Ingestion:	May cause irritation
Inhalation:	May cause irritation
Chronic:	N/A

Signs & Symptoms: N/A

Aggravated Medical Conditions: N/A

Median Lethal Dose: N/A

### Carcinogen:

IARC-2B: Possibly carcinogenic to humans: limited evidence in human in the absence of sufficient evidence in experimental animals.  
EPA-A: human carcinogen: sufficient evidence from epidemiologic studies to support a causal association between exposure and cancer  
NTP-K: Known to be carcinogenic: sufficient evidence from human studies.

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## 12. Ecological Information

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Aquatic Toxicity:	High
Persistent Bioaccumulation Toxicity:	No
Very Persistent, Very Bioaccumulative:	No
Notes:	May cause long lasting harmful effect on aquatic life. Do not allow product to reach any water sources. Danger to drinking water if even extremely small quantities leak into the ground. Avoid transfer into the environment. Toxic to aquatic life.

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## 13. Disposal Considerations

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Dispose of in accordance with local, state, national, and international regulations.

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## 14. Transportation Data

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Hazardous: Hazardous as powder only.



Hazard Class: 4.1 Flammable solids, self-reactive substances and solid desensitized explosives

Packing Group: III

UN Number: UN3089

Proper Shipping Name: Metal powders, flammable, n.o.s. (Nickel iron)

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### 15. Regulatory Information

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Sec 302 Extremely Hazardous:	No
Sec 304 Reportable Quantities:	N/A
Sec 313 Toxic Chemicals:	Yes

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### 16. Other Information

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This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.

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