

Safety Data Sheet



1. Identification of the Substance/Mixture and the Supplier

Supplier : National Institute of Advanced Industrial Science and Technology (AIST)

Address : 1-3-1 Kasumigaseki, Chiyoda, Tokyo, Japan

Office in Charge : Reference Materials Office, Center for Quality Management of Metrology, National Metrology Institute of Japan

Person in Charge : Certified Reference Material Staff

Telephone No. : +81-29-861-4059 Fax No. : +81-29-861-4009

Emergency No. : Same as above

Prepared on : August 29, 2007
Revised on : August 31, 2022
ID Number : 1006001~1010001

Identity of Substance/Mixture : Certified reference material: NMIJ CRM 1006-a~1010-a
Fe-Ni alloy Reference Material (Ni: 5 %, 10 %, 20 %, 40 %, and 60 %)

Recommended Use of the Chemical and Restriction on Use : This certified reference material (CRM) is intended to use in calibrating the content of the nickel in steel by electron probe micro analyzer (EPMA). Do not use this reference material for other purposes than testing/research.
This CRM is a reference material (specified in the Japanese Industrial Standard (JIS) Q 0030).

2. Hazards Identification

GHS Classification : Respiratory organ : Hazard Category 1 sensitization

Skin Sensitization : Hazard Category 1

Carcinogenicity : Hazard Category 2

Specific Target Organ : Hazard Category 1 (Respiratory organ , kidney)

Toxicity/Systemic Toxicity (Single Exposure)

Specific Target Organ : Hazard Category 1 (Respiratory organ)

Toxicity/Systemic Toxicity (Repeated Exposure)

Water environment : Hazard Category 4 (Ni 40 %, 60 %) toxicity (Prolonged)

GHS label element :



Signal Word : Danger

Hazard and toxicity : May cause allergy, asthma or breathing difficulty if inhaled.

	<p>May cause an allergic skin reaction.</p> <p>May cause cancer.</p> <p>Causes damage to organ (respiratory system and kidney).</p> <p>Causes damage to organ (lung) through prolonged or repeated exposure.</p> <p>May cause damage to aquatic life through prolonged or repeated exposure.</p>
Other Hazards Statement	: -
Precautionary Statement	: [Precaution]
	<p>Do not breathe gas, dust, mist, vapors, spray, etc.</p> <p>Do not handle until all safety precautions have been read and understood.</p> <p>Do not eat, drink or smoke when using this product.</p> <p>Wash hands thoroughly after handling.</p> <p>Use protective globes.</p> <p>Do not bring out contaminated work clothing out of the workplace.</p> <p>Use personal protective equipment if necessary.</p>
	[First-aid Action]
	<p>If respiratory symptoms occur, get medical advice/attention.</p> <p>If skin rinse skin with running water and soap.</p> <p>If skin irritation or rash occurs: Get medical advice/attention.</p> <p>If exposed or concerned: Get medical advice/attention.</p>
	[Storage]
	<p>Store this CRM in a clean and dry place such as desiccator at normal room temperature.</p> <p>This CRM should be kept in locked and keyed.</p>
	[Disposal]
	<p>Dispose of this reference material in accordance with applicable legislation and local government ordinance.</p> <p>Entrust disposal of this reference material to a professional waste disposal company licensed by prefectural governor.</p>
	<p>The other hazards than the above do not result in classification or are not classifiable.</p>

3. Composition/Information on Ingredients

Substance or mixture	: Mixture (Alloy)
Chemical name	: Iron-Nickel Alloy
Chemical Formula or Structural Formula	: Fe, Ni
Amount	: Ni: 5 %, 10 %, 20 %, 40 %, 60 % Fe: remnant
Reference Number in Gazetted List in Japan	: Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. : -

Industrial Safety and Health Act : -
 CAS No. Nickel:7440-02-0 Iron:7439-89-6
 Hazardous substance : Nickel:7440-02-0

4. First-aid Measures

If in Eyes : Rinse cautiously with clean water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention immediately.

If on Skin : Rinse away thoroughly with clean water. Take off/Remove contaminated clothing, shoes, etc. Get medical advice/attention.

If Inhaled : In case of dyspnea during polishing operation, perform respiratory support. Get medical advice/attention immediately.

If Ingested : Rinse mouth thoroughly with water. Drink a lot of water then it induces vomiting. Immediately call a physician.

Predicted immediate and delayed symptoms : No data

Most important symptom/effect : Skin sensitization.

Protecting Personnel in emergency measures : Wear protective equipment such as rubber gloves, eye protective goggles.

5. Fire-fighting Measures

Extinguishing Media : Use extinguishing media for peripheral fire.

Fire-Specific Hazards : This material is nonflammable in a normal condition. In the case of fire, irritating or toxic fume (or gas) may be generated.

Specific Fire-Fighting Method : Eliminate ignition sources at the origin of a fire and put out fire by using extinguishing media. Remove movable containers promptly to a safe place. In the case of immovable containers, cool their surroundings with sprayed water.

Protection of Fire-Fighters : Carry out fire-fighting from the windward in order to avoid breathing hazardous gas. Use personal protective equipment such as fire protection clothing, heat-resistant clothing, protective clothing, breathing apparatus, circulating oxygen respirator, rubber gloves, and rubber boots.

6. Accidental Release Measures

Personal Precaution : May cause allergy, use appropriate personal protective equipment.

Personal Protective Equipment and Emergency Procedures : Ventilate the affected areas thoroughly, if it is in an indoor environment, until the clean-up operation is completed. Use appropriate personal protective equipment during the operation to avoid skin contact of splash etc. and inhalation of dust and gas.

- Environmental Precautions : Take precautions to prevent spillage from draining into rivers etc. to adversely impact the environment. Make it sure to appropriately treat contaminated wastewater in order to prevent untreated wastewater from being released into the surrounding environment.
- Recovery and Neutralization : Collect the contaminated items in an empty container.
- Prevention of Secondary Disaster : Mark the restricted area with rope etc. to keep out unauthorized people. Carry out the clean-up operation from the windward and make people on the leeward side evacuate.

7. Handling and Storage

Handling

- Engineering Precautions : Do not handle with bare hands.
- Local and General Ventilation : When dust is generated, seal the source, and provide local exhaust ventilation or central ventilation.
- Precautions for Safe Handling : Avoid rough handling such as turning over, dropping, giving a shock to or dragging containers.
Prevent spill, overflow and scattering, and avoid vapor generation.
Wash hands, face etc. thoroughly and gargle after handling this reference material.
Do not eat, drink, or smoke during handling
Restrict drinking, eating and smoking to a designated area.
Use appropriate personal protective equipment to avoid inhalation and contact with eyes, skin and clothing.
Do not bring gloves and other contaminated personal protective equipment into staff room.
Make a place handling this reference material a restricted area to keep out unauthorized people.
Avoid the substance contacting with water and/or acid, as well as with the environment at higher temperature and humidity.

Storage

- Appropriate Storage Conditions : Store in clean and dry place such as a desiccator at normal room temperature.
- Safe Container : Plastics container
- Packaging Material
- ※ Please refer the certificate about the details of appropriate storage conditions and precautions for the use as reference material.

8. Exposure Controls/Personal Protection

Threshold Limit Value

No data

Permissible Concentration (Nickel)

• ACGIH TLV-TWA (2000)	: 1.5 mg/m ³
• Values recommended by Japan Society for Occupational Health (2000)	: 1 mg/m ³
• OSHA PEL TWA	: 1 mg/m ³
Facility engineering	
• Ventilation, exhaust	: Local exhaust ventilation system or general ventilation system
• Safety management/gas detector	: Measuring instrument、detector tube
• Storing precaution	: Keep away from acids.
Personal Protective equipment	
Respiratory protection	: Protective dust mask, if necessary
Hands	: Protective gloves
Eyes	: Eye protector (Goggle type as necessary)
Skin and Body	: Protective clothing
Hygiene measure	: Treat in accordance with rules on Industrial hygiene and Industrial safety.

9. Physical and Chemical Properties

• Appearance, etc.	: Solid
• Color	: Silvery white
• Odor	: No data
• pH	: No data
• Melting point	: 1430 °C - 1530 °C
• Boiling point	: No data
• Flashing point	: No data
• Explosive range	: No data
• Vapor pressure	: No data
• Relative vapor density(Air=1)	: No data
• Specific gravity or bulk specific gravity	: 7.9 - 8.4
• Solubility	: No data
• <i>n</i> -Octanol/water partition coefficient (Log Po/w)	: No data
• Auto-ignition temperature	: No data

10. Stability and Reactivity

- ◇Stability
 - Stable in normal conditions
- ◇Reactivity
 - Reactivity is week.

- ◇Conditions to Avoid
 - Contact with water or oxidizing substances may cause rust.
- ◇Hazardous Decomposition Products
 - No data

11. Toxicological Information

Respiratory Sensitization	Japan Society for Occupational Health (2005) Respiratory tract substance (Group 2) Japan Society of Occupational Allergy, and DFG Respiratory tract substance
Skin Sensitization	Japan Society for Occupational Health (2005) Skin Sensitization substance (Group 1) Japan Society of Occupational Allergy, and DFG Skin Sensitization substance
Carcinogenicity	NTP (2005) R (as Nickel metal) IARC (1990) 2B (as Nickel metal)
Specific Target Organ Toxicity/Systemic Toxicity (Single Exposure)	Based on the description “Damage and hydrops on alveolar wall in alveoli area, and serious tubulonecrosis in kidney” (ATSDR (2005)), it was assumed that respiratory apparatus and kidney are the target organs.
Specific target organ / systemic toxicity (repeated exposure)	Based on the descriptions “Pleurisy, pneumonia, hemostasis, and hydrops” (CaPSAR (1994)), “Increase in lamellar body combined to alveoli was observed” (ATSDR (2005)), and so on, it was assumed that respiratory apparatus is the target organ.
Water environment toxicity (chronic)	Although $L(E)C_{50} \leq 100\text{mg/L}$ data is available, behavior in the water is unknown because it is metal.

12. Ecological Information

- Persistence and Degradability
 - No data available
- Bioaccumulative Potential
 - No data available
- Ecotoxicity
 - No data available

13. Disposal Considerations

- Dispose in accordance with applicable regional, national and local laws and regulations.
- Dispose of containers after thoroughly removing their contents.

14. Transport Information

- UN Number : Not applicable
- UN Classification : Not applicable

Shipping Name : -
Packing Group : -
ICAO/IATA : -
Marine Pollutant : -
Precautions : Transport this reference material carefully while keeping it away from direct sunlight and humidity, and preventing accidental release due to falling, overturning, etc.

15. Regulatory Information

◇Pollutant Release and Transfer Register (PRTR) Law

- Class 1 Designated Chemical Substance

◇Air Pollution Control Act

- Hazardous Air Pollutants

◎ **This SDS is originally prepared for the use of the material in Japan, thus the stated laws and regulations are stipulated and carried out in Japan. The use of the material in other countries should be referred to and by application of the relevant laws and regulations of the country in which the material will be used.**

16. Other Information

Others

The information in this document is not intended to be exhaustive and is based on currently available information and data. The measures given in this document are applicable only to normal handling conditions. When handling this reference material under special conditions etc., it is recommended to take safety measures appropriate to each specific application and context of use. This document is intended to provide information and not intended to guarantee anything in handling this reference material.
