

# 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 Contact : Same as above

Prepared on : August 29, 2007  
Revised on : November 21, 2017  
ID Number : 1016001

Identity of Substance/Mixture : Certified reference material: NMIJ CRM 1016-a  
Iron-chromium Alloy (Cr40%)

Recommended Use of the Chemical and Restriction on Use : This CRM is intended for use in correcting carbon content during the electron probe micro analyzer (EPMA) analysis of carbon steel. Do not use this reference material for other purposes than testing/research.

## 2. Hazards Identification

GHS Classification : Respiratory organ : Hazard Category 1 sensitization  
Skin corrosion/irritation : Hazard Category 1  
Germ cell mutagenicity : Hazard Category 2

GHS Label Element:



Signal Word : Danger

Hazards Statement: May cause an allergic skin reaction  
Suspect of causing genetic defects  
May cause allergy, asthma or breathing difficulty if inhaled

Other Hazards Statement : Powder of iron-chromium alloy may cause eye irritation  
May cause metal fume fever  
May cause respiratory tract irritation

Precautionary Statement : [Precaution]  
• Use protective gloves.  
• Use appropriate personal protective equipment, if necessary.  
• Do not bring out contaminated work clothing out of the workplace.  
• Wash the contaminated clothing before re-used.

- When dust is generated, seal the source, and wear respiratory protection equipment.
- Get the instruction manual before use. Do not handle until all safety precautions have been read and understood.
- Do not breathe dust, fume, gas, mist, vapors, etc.

[Action]

If inhaled: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

Get medical advice/attention if you feel unwell.

If on skin: Remove/Take off all contaminated clothing and adhered materials. Rinse skin with running water and soap. Get medical advice/attention if you feel unwell.

If exposed: Get medical advice/attention.

[Storage]

Store this CRM at normal room temperature and seal tightly to avoid the influence of acid and alkali.

It is recommended to store in the place with low humidity such as a desiccator.

[Disposal]

Dispose of this reference material in accordance with applicable legislation and local government ordinance.

Entrust disposal of this reference material to a professional waste disposal company licensed by prefectural governor.

Hazardous and toxic properties not specified in the above are neither the object of the classification nor classifiable

### 3. Composition/Information on Ingredients

Substance or Mixture	: Mixture(alloy)
Chemical name	: Iron-chromium Alloy
Synonym	: -
Chemical formula	: Cr, Fe
Molecular weight	: -
CAS number	: Chromium : 7440-47-3,      Iron : 7439-89-6
Content	: Chromium : 39.48 %,      Iron : 60.10 %
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      : -
Hazardous substance	: Chromium

### 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	: Remove/Take off contaminated clothing, etc. Rinse thoroughly

- with clean water. Wash polluted clothing, if reuse them.
- If Inhaled : In case of dyspnea during polishing operation, perform respiratory support. Get medical advice/attention immediately.
- If Ingested : Rinse mouth thoroughly with water.  
Do not induce vomiting, if it is not the instructions from a doctor.  
Get medical advice/attention when feeling unwell.
- Predicted immediate and delayed symptoms : Diarrhea, nausea, loss of consciousness, vomiting.
- Most important symptom/effect : Skin sensitization.
- Measures to be taken to protect the person applying first aid : Use personal protective equipment.

## 5. Fire-fighting Measures

- Extinguishing Media : This material is incombustible, use a fire extinguishing agent suitable for surrounding fire.
- Fire-Specific Hazards : Non-flammable in 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 : This CRM is allergenic substance, then use the appropriate 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 : Collect spillage in empty containers by getting it adsorbed to

Neutralization : wiping cloth, rag or earth and sand, etc.  
 Prevention of : Mark the restricted area with rope etc. to keep out unauthorized  
 Secondary Disaster : people. Carry out the clean-up operation from the windward and  
 make people on the leeward side evacuate.

## 7. Handling and Storage

### Handling

Engineering : Do not handle with bare hands.

### Precautions

Local and General : When vapor or mist is generated, seal the source, and provide  
 Ventilation local exhaust ventilation or central ventilation.

Precautions for Safe : Do not handle until all safety precautions have been read and  
 Handling understood.

Do not bring out contaminated work clothing out of the workplace.

Use appropriate personal protective equipment if necessary.

Avoid breathing dust / fume / gas / mist / vapors / spray.

Wash the contaminated clothing before re-used.

Avoid contact with water and acid. Avoid hot and humid environment.

### Storage

Appropriate Storage : Store in clean and dry place such as a desiccator at normal room  
 Conditions temperature.

Safe Container : Plastic 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

• Regulation for waste water <2 mg/L (Cr)

### Permissible Concentration (Cr)

• ACGIH TLV-TWA : 0.5 mg/m<sup>3</sup>  
 (2000)

• Values recommended : 0.5 mg/m<sup>3</sup>

by Japan Society for  
 Occupational Health  
 (2000)

• OSHA PEL TWA : 1 mg/m<sup>3</sup>

### 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. : Disk with 30 mm diameter and 6 mm thickness.
- Color : Silver black
- Odor : No data
- pH : No data
- Melting point : No data
- 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 : No data
- Solubility : No data
- *n*-Octanol/water partition coefficient (Log *P*<sub>o/w</sub>) : No data
- Auto-ignition temperature : No data

### 10. Stability and Reactivity

- ◇Stability
  - Stable in normal conditions
- ◇Reactivity
  - Reactivity is weak.
- ◇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: For humans, this reference material probably causes respiratory sensitization.
- Skin Sensitization ECETOC Technical Report 45 (1992): Metal chromium, chromium alloy and chromium plating, as they are, do not cause skin sensitization. When they are dissolved due to moisture and when humans are exposed to chromium ions, however, skin

	sensitization may be caused.
	Japan Society for Occupational Health: For humans, this reference material definitely causes skin sensitization.
Germ Cell Mutagenicity	IARC 49 (1999): Positive in the in-vivo somatic mutagenicity (chromosome aberration of rats' peripheral blood lymphocytes) test.
Specific Target Organ Toxicity/Systemic Toxicity (Single Exposure)	SITTIG (47 <sup>th</sup> (2002)) and HSFS (2000): May cause metal fume fever HSDB (2005): Respiratory tract irritation was reported.

## 12. Ecological Information

Degradability, concentration

- No-data

Bioaccumulative Potential

- No-data

Ecotoxicity

- No-data

## 13. Disposal Considerations

- Dispose of this reference material in accordance with applicable legislation and local government ordinance.
- When the above-mentioned treatments are not possible, entrust disposal of residual waste to a professional waste disposal company licensed by prefectural governor.
- Dispose of containers after thoroughly removing their contents.

## 14. Transport Information

UN Number : N/A

UN : N/A

Classification

Material name : -

Container : -

grade

ICAO/IATA : -

Marine : -

pollutant

Precautions : Avoid direct sunlight and transfer with care not to spill/leak by dropping or falling, etc.

## 15. Regulatory Information

◇Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof (PRTR system Pollutant Release and Transfer Register)

- Class 1 Designated chemical substance

- ◇Industrial Safety and Health Act
  - Chemical substances which result in illness
- ◇Air Pollution Control Act
  - Hazardous air pollutant

◎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. This document is prepared based on JIS Z7253:2012.

---