

Safety Data Sheet



1. Identification of the Substance/Mixture and the Supplier

Supplier : National Institute of Advanced Industrial Science and Technology (AIST)
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 Office in Charge : Reference Materials Office, Center for Quality Management of Metrology, National Metrology Institute of Japan
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ID Number : 3009001

Identity of Substance/Mixture : Certified reference material: NMIJ CRM 3009-a
 Zinc (High purity metal)
 Recommended Use of the Chemical and Restriction on Use : This reference material is intended for use in the standardization of ethylenediamine-N,N,N',N'-tetra acetic acid (EDTA) on chelatometric titration and for use in the calibration of procedures for zinc determination. 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: Serious eye damage/ Eye irritation : Hazard Category 2B
 Water environment toxicity (Acute) : Hazard Category 1
 Water environment toxicity (Prolonged) : Hazard Category 1

GHS Label Element:



Signal Word: Warning
 Hazards Statement: Causes serious eye irritation.
 Extremely toxic to aquatic life.
 Very toxic to aquatic life with long lasting effects.
 Precautionary Statement: [Precaution]
 Low risk in normal handling.
 [First-aid Action]
 Wash hands, face, etc. such as exposed skin after handling this

reference material.

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.

[First-aid Action]

If in eyes: Rinse cautiously with clean water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

In case of leakage, collect the spillage.

[Storage]

This CRM should be kept in the high-density polyethylene pouch sealed in an aluminum-laminated plastic bag at the temperature between 15 °C and 35 °C as well as the relative humidity less than 60 %.

[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.

The other hazards than the above do not result in classification or are not classifiable.

3. Composition/Information on Ingredients

Substance/Mixture	: Single substance
Chemical name	: Zinc
Alias	: -
Content	: 99 % over
Chemical or structural formula	: Zn
Molecular Weight	: 65.41
ID Number in Official Gazette	: Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. : - Industrial Safety and Health Act : -
CAS Number	: 7440-66-6
Hazardous Ingredient	: Zinc

4. First-aid Measures

If in eyes	: If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
If on skin	: Rinse away thoroughly with clean water. Take off/Remove contaminated clothing, shoes, etc. Get medical advice/attention.
If inhaled	: Remove victim to fresh air and keep at rest and warm. If respiratory symptoms occur, get medical advice/attention.

- If swallowed : Rinse mouth thoroughly with water. Do not give anything orally to an unconscious person. Get medical advice/attention immediately. Do not induce vomiting without an advice by Doctor.
- Expected Acute and Delayed Symptom : —
- Most Critical Characteristic and Symptom : —
- Protection of First-Aid Responder : Use appropriate personal protective equipment.

5. Fire-fighting Measures

- Extinguishing Media : Water spray, carbon dioxide, dry chemical, hydrosoluble foam extinguisher and sand.
- Fire-Specific Hazards : In case of fire, may emit irritating or toxic fume (or gas).
- 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 fireproof clothing, heat-resistant clothing, protective clothing, compressed air open-circuit self-contained breathing apparatus, compressed oxygen closed-circuit self-contained breathing apparatus, rubber gloves and rubber boots.

6. Accidental Release Measures

- Personal Precaution : Use appropriate personal protective equipment to avoid contact with skin, eyes and clothing.
- 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 spillage in empty containers. Rinse away the remains with plenty of water.
- 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 : Use local ventilation system in indoor handling areas.

Local and General Ventilation : Seal the source, and provide local exhaust ventilation or central ventilation.

Precautions for Safe Handling : Do not grind or crush the sample for safety use.
Avoid rough handling such as turning over, dropping, giving a shock to or dragging containers.
Prevent spill, overflow and scattering, and avoid vapor generation.
Keep container tightly closed after using this reference material.
Wash hands, face etc. thoroughly and gargle after handling this reference material.
Restrict drinking, eating and smoking to a designated area.
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.
Use appropriate personal protective equipment to avoid inhalation and contact with eyes, skin and clothing.
Use local ventilation system in indoor handling areas.

Storage

Appropriate Storage Conditions : This CRM should be kept in the high-density polyethylene pouch sealed in an aluminum-laminated plastic bag at the temperature between 15 °C and 35 °C as well as the relative humidity less than 60 %.

Safe Container Packaging Material : High-density polyethylene, glass

※ 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 : Not specified

Permissible Concentration

- ACGIH TLV-TWA : Not specified
- Value recommended : 5 mg/m³ (Zinc oxide hume)

by Japan Society for Occupational Health

- OSHA PEL TWA : Not specified

Engineering Controls

Ventilation/Exhaust : Local ventilation system or General ventilation system

Safety Control/ : —

Gas Detection

Storage Precaution : Tightly closed. Keep away from acid and strong oxidizer.

Personal Protective Equipment (PPE)

- Respiratory System : Protective mask
- Hands : Protective gloves
- Eyes : Protective glass

Skin and Body : Protective clothing
Hygiene Controls

Handle this reference material in accordance with industrial health and safety standards.

9. Physical and Chemical Properties

- Appearance, etc. : Solid
- Color : Gray
- Odor : No data
- pH : No data
- Melting point : 419 °C
- Boiling point : 930 °C
- 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 : Insoluble in water. This CRM reacts violently with hydrochloric acid and sulfuric acid and generates hydrogen.
- *n*-Octanol/water partition coefficient (Log Po/w) : No data
- Auto-ignition temperature : No data

10. Stability and Reactivity

- ◇Chemical Stability
 - Stable under recommended storage conditions
- ◇Reactivity
 - No data
- ◇Conditions to Avoid
 - Sunlight, Heat, contact with oxidizer
- ◇Hazardous Decomposition Products
 - Hydrogen
 - Zinc oxides fume

11. Toxicological Information

Acute Toxicity	Oral Rat	LD50 > 2000 mg/kg
	Inhalation Rat	LC50 > 5140 mg/m ³
Skin Corrosion/ Irritation	Although data for zinc is not available, its effects are comparable to those of zinc oxide. Zinc oxide carries no risk of skin irritation.	
Serious eye damage / irritancy	Tests in rabbit eyes showed mild eye irritancy such as conjunctival redness and edema.	

Aquatic Environmental Toxicity (Acute) Algae 72h-ErC50=0.15 mg/L

Aquatic Environmental Toxicity (Chronic) It is considered that there is no rapid degradability, as it is a metal compound. It is classified as Class 1, as the Acute Toxicity Classification is Class 1.

12. Ecological Information

Persistence and Degradability

- No data available

Bioaccumulative Potential

- No data available

Ecotoxicity

- No data available

13. Disposal Considerations

Residual Waste : It is desirable to contract out the disposal waste products to a qualified waste disposal company.
Follow Articles 1 and 2 of Ordinance of the Prime Minister's Office on Standards for Verification concerning Industrial Wastes containing Metals, etc.

Contaminated Container and Package : Dispose of containers after thoroughly removing their contents.

14. Transport Information

UN Number : 3077

UN Classification : Class 9

Shipping Name : Environmentally hazardous substance, Solid

Packing Group : PG III

ICAO/IATA : Class 3 Grade III

Marine Pollutant : Not applicable

Precautions : Transport this reference material carefully while keeping it away from direct sunlight and fire and preventing accidental release due to falling, overturning, etc.

15. Regulatory Information

◇Regulations for the Carriage and Storage of Dangerous Goods in Ships

- Hazardous Substance (Dangerous Goods Rule: Article 3, Dangerous Goods Publication Appendix 1)

◇Civil Aeronautics Act

- Miscellaneous dangerous substances (Enforcement Order: Article 194, Dangerous Goods Publication Appendix 1)

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.
