

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 (NMIJ)
 Person in Charge : Person in Charge of Certified Reference Materials
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 Emergency Contact : Same as above

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ID Number : 7203001

Identity of Substance/Mixture : Certified reference material: NMIJ CRM 7203-a
 Tap Water for Trace Element Analysis (Elevated Level)
 Recommended Use of the Chemical and Restriction on Use : This CRM is intended for use in the calibration of instruments or for confirming the validity of analytical methods or instruments during quantification of trace elements in tap water, drinking water and other freshwater samples. 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 : Acute Toxicity (oral) : Hazard Category 5
 Acute toxic if inhaled, dust or mist : Hazard Category 5
 Skin Corrosion/ Irritation : Hazard Category 2
 Serious Eye Damage/ Eye Irritation : Hazard Category 2A

GHS Label Element :



Signal Word: Warning
 Hazards Statement : May be harmful if swallowed.
 May be toxic, if inhaled.
 Causes skin irritation
 Causes serious eye irritation

Other Hazards Statement : The contents of arsenic and selenium are less than the Drinking Water Quality Standard (10 µg/L) provided in Article 4 of the Water Supply Act. The content of mercury is less than the Drinking Water

Quality Standard (0.5 µg/L) provided in Article 4 of the Water Supply Act. Therefore, their toxicity is low.

Precautionary Statement : [Safety Precaution]
Wash hands thoroughly after use.
Use appropriate personal protective equipment if necessary. [First-aid 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, wash with a large volume of water.
If skin irritation is caused, consult a doctor.
Remove/Take off all contaminated clothing and wash polluted clothing, if reuse them.
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.
[Storage]
Store in a dark and clean environment at temperature of 5 °C to 25 °C.
Store in a locked area.
[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.

Hazards not mentioned above are either not classifiable or not applicable.

3. Composition/Information on Ingredients

Substance/Mixture : Mixture
Chemical Identity : Tap water (elevated level)

Component (1) : Water
Content : Approximately 99 %
Chemical Formula : H₂O
Molecular Weight : 18.02
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 Number : 7732-18-5

Component (2) : Nitric acid
Content : Approximately 1 %
Chemical Formula : HNO₃

Molecular Weight	: 63.01
Reference Number in Gazetted List in Japan	: Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. : (1)-394 Industrial Safety and Health Act : Published
CAS Number	: 7697-37-2
Component (3)	: Hydrochloric acid
Content	: Ca. 0.3 %
Chemical Formula	: HCl
Molecular Weight	: 36.46
Reference Number in Gazetted List in Japan	: Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. : (1)-215 Industrial Safety and Health Act : Published
CAS Number	: 7647-01-0
Component (4)	: Arsenic
Content	: 5 µg/kg
Chemical Formula	: As
Molecular Weight	: 74.92
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 Number	: 7440-38-2
Component (5)	: Selenium
Content	: 5 µg/kg
Chemical Formula	: Se
Molecular Weight	: 78.96
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 Number	: 7782-49-2
Component (6)	: Mercury
Content	: 0.4 µg/kg
Chemical Formula	: Hg
Molecular Weight	: 200.59
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 Number	: 7439-97-6
Hazardous Ingredient	: Nitric acid, hydrochloric acid, arsenic, selenium, mercury

4. First-aid Measures

- If in Eyes : Rinse away thoroughly with clean water. 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. Get medical advice/attention.
- If swallowed : Rinse mouth thoroughly with water. Get medical advice/attention immediately.
- Expected Acute and Delayed Symptom : -
- Most Critical : -
- Characteristic and Symptom
- Protection for first aid provider : Use appropriate protective equipment to avoid inhalation.

5. Fire-fighting Measures

- Extinguishing Media : Use a fire extinguishing agent suitable for surrounding fire.
- Fire-Specific Hazards : —
- 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.
- Protecting fire-fighting personnel : Extinguish from windward, avoid inhaling toxic gases. Use personal protective equipment such as fire-resistant clothing, self-contained compressed air breathing apparatus, closed circuit breathing apparatus, rubber gloves, rubber boots, etc.

6. Accidental Release Measures

- Personal Precaution : Use appropriate personal protective equipment during the operation to avoid skin contact and contamination of clothes.
- Personal Protective Protective equipment and emergency procedure : 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 : Adsorb spillage with waste clothes or wiping clothes or dry sand, and collect 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

Local and General Ventilation : When vapor or mist 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.

Keep container tightly closed after use.

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 area.

Storage

Appropriate Storage Conditions : Avoid direct sun light and store in a clean place at room temperature from 15 °C to 26°C.

Store in a locked area.

Safe Container Packaging Material : Polyethylene

※ Please refer to the certificate regarding details of appropriate storage conditions and precautions for use as reference material.

8. Exposure Controls/Personal Protection

Threshold Limit Value

Not specified

Permissible Concentration (nitric acid)

- ACGIH TLV-TWA : 4 ppm(STEL)
2 ppm(TWA)
- Value recommended by Japan Society for Occupational Health : 2 ppm, 5.2 mg/m³
- OSHA PEL TWA : Not specified

Permissible Concentration (hydrochloric acid)

- ACGIH TLV-TWA : Ceiling: 2 ppm
- Value recommended by Japan Society for Occupational Health : 5 ppm
- OSHA PEL TWA : Not specified

Engineering Controls

- Ventilation/Exhaust : Local ventilation system or General ventilation system
- Safety Control/ : -
- Gas Detection
- Storage Precaution : Seal.

Personal Protective Equipment (PPE)

- Respiratory System : Protective mask
- Hands : Protective gloves
- Eyes : Protective glasses
- 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. : Liquid
- Color : Clear and colorless
- Odor : Odorless
- 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 : Miscible with water and ethanol.
- *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 information available
- ◇Conditions to Avoid
 - Sunlight, Heat
- ◇Hazardous Decomposition Products
 - No information available

11. Toxicological Information

Acute Toxicity (nitric acid)

	Oral Human LD50:430 mg/kg
	Inhalation Rat LC50:67 ppm (4H) (hydrochloric acid)
	Oral Rat LD50:238 mg/kg to 277 mg/kg
	Dermal Rabbit LD50 > 5010 mg/kg
	Inhalation Rat LC50:1.68 mg/L (1H) (Nitric acid)
Skin corrosion /Irritation	Nitric acid has been described as having corrosion to human skin. (Hydrochloric acid) In skin irritation tests using rabbits, skin corrosion was observed after 1 to 4 hours of exposure, depending on the concentration. Irritation and skin ulcer associated with discoloration of the skin were observed in mice and rats after 5 to 30 minutes of exposure. In humans, minor to severe irritation, ulcer, and chemical burn have been reported.
Serious Eye Damage/Eye Irritation	(Nitric acid) Exposure of human eyes causes severe burns, leading to corneal opacity and impaired eyesight, and eventually resulting in blindness. (Hydrochloric acid) It is classified into Category 1 for Skin Corrosion. Eye damage/irritation is caused by exposure to hydrochloric acid. The results of tests using multiple species, including rabbits, showed that it caused serious eye irritation, damage, and corrosion. It is also described that it may cause permanent damage to human eyes or blindness.
Toxicity to Respiratory Organ (Aspiration)	(Mercury) It is observed that eye redness, a burning sensation in the eyes, and conjunctivitis are caused by exposure to highly concentrated mercury vapor. (Nitric acid) Inhalation has caused chemical lobar pneumonia. (Hydrochloric acid) It is listed as one of the sensitizing chemical substances for occupational allergy prepared by the Japanese Society of Occupational Allergy Special Committee. It has been reported that a person suffered from bronchospasm after exposure to a cleaning agent that contained hydrochloric acid, and asthmatic symptoms were triggered by only a small amount of the substance, even after one year.

Other

* For the toxicity information, due to no information as a mixture, it is originated from the information about raw materials.

The present product is stable under the normal condition, and there is no hazard such as eluting any harmful additive agent ingredients; however, in case of special handling such as its use under higher temperature, sufficient measures for safety should be taken.

12. Ecological Information

Persistence and Degradability

- No data available

Bioaccumulative Potential

- No data available

Ecotoxicity

- No data available

13. Disposal Considerations

Residual Waste : Entrust disposal of this reference material to a professional waste disposal company licensed by local or national authority.

Contaminated : Dispose of containers after thoroughly removing their contents.

Container and
Package

14. Transport Information

UN Number : 2031

UN Classification : Class 8

Shipping Name : Nitric, except fuming nitric acid, those concentrations below 20%

Packing Group : PG II

ICAO/IATA : Class 8, grade II

Marine Pollutant : Not applicable

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

15. Regulatory Information

◇Poisonous and Deleterious Substances Control Act

- Article 2 Appended Table 1 Poisonous Substances

(Arsenic compounds and preparations which contain Arsenic compounds)

- Article 2 Appended Table 1 Poisonous Substances

(Selenium compounds and preparations which contain Selenium compounds)

- Article 2 Appended Table 1 Poisonous Substances

(Mercury compound and preparations which contain Mercury compounds)

◇Ship Safety Act

- Dangerous Goods Regulations Article 3 Notification of Dangerous Goods, Appended Table Category III Corrosive substances

◇Civil Aeronautics Act

- Ordinance for Enforcement Article 194 Notification of Dangerous Goods, Appended Table 11 Corrosive substances

◇Act on Port Regulations

- Ordinance for Enforcement Article 12 Notification of Dangerous Goods, Corrosive substances

◇Industrial Safety and Health Law

- Article 57-2 (Enforcement Order: Article 18) Hazardous substance whose name, etc. must be labeled.
- Article 57-2 (Enforcement Order: Article 18-2) Hazardous substance whose name, etc. must be notified No. 307, No. 98.

◇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.
