



Material Safety Data Sheet



1. Identification of the Substance and the Company

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

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Reference No. : 7901001

Identification of the Substance : Certified Reference Material NMIJ CRM 7901-a
Arsenobetaine Solution

2. Hazards Identification

GHS Classification : Acute toxicity, oral category 5

GHS Label element : Not available

Signal word : Warning

Hazard communication : May be harmful if swallowed

Hazards : Substance not flammable or combustible

Toxicity : Toxic when ingested. Irritates eye, throat and mucous membrane

Physical and chemical hazards : Low in harmfulness if handled normally

3. Composition/Component Information

Single or Compound Product : Compound Product

- Component 1

Chemical Name : Arsenobetaine

Chemical Formula or Structural Formula : $C_5H_{11}AsO_2$

Content : < 0.01%

Official Gazette Public Reference No. (Japanese Law Concerning the Evaluation of Chemical
Substances and Regulation of Their Manufacture) :

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CAS No : 64436-13-1

- Component 2

Chemical Name : Water

Chemical formula or Structural Formula : H_2O

Content : > 99.99%

Official Gazette Public Reference No. (Japanese Law Concerning the Evaluation of Chemical
Substances and Regulation of Their Manufacture) -

CAS No : 7732-18-5

4. Emergency Measures



◇Eye Contact

1. Immediately wash with plenty of clean water more than 15 minutes.
2. Immediate medical consultation required

◇Skin contact

1. Wash the affected area with plenty of clean water
2. Immediate medical consultation required

◇Inhalation

1. Remove the victim to fresh air, keep at rest
2. Rinse out and gargle with plenty of water
3. Medical consultation as needed

◇Ingestion

1. Give plenty of water or milk and let vomit.
2. Immediate medical consultation required

5. Firefighting Measures

Fire Extinguishing Method

◇Extinguishing procedure

- Wear appropriate protective equipment to prevent inhaling fume
- Cut off feeding combustibles to fire source, extinguish with appropriate extinguishing agent on the windward if possible
- If possible to move, by trying not to break the container, pour water carefully into the container to cool down

◇Protective equipment for extinguishing activity

- Protective clothing
- Self contained breathing apparatus
- Air-purifying or supplied air respirator
- Rubber boots
- Fire resistant clothing

Extinguishing Agent

- Spray water, dry chemical powder, carbon dioxide, sand, foam
- No particular extinguishing agent prohibited from using

6. Accidental Release Measures

- No open flames or other source of ignition permitted around the spill area, remove ignition sources away from the area promptly
- Prohibit entrance into the spill area by enclosing with a rope, etc.
- Wear appropriate protective equipment and work on the windward
- Use sand or vermiculite to adsorb the substance and store in an airtight container exclusively for industrial wastes
- As for the environmental protection, treat the material appropriately before discharging into the environment

7. Handling and Storage Precautions

Handling

- Wear appropriate protective equipment, avoid inhaling and skin contact
- After handling, wash hands and face well, rinse the mouth and gargle with plenty of water



- After using, the container should be closed airtight

Storage

- Store in a dark and clean place at room temperature

8. Exposure Controls/Personal Protection

Occupational Exposure Limits

◇ Arsenobetaine

- ACGIH TLV : Not established
- OSHA PEL : Not established
- Japan Society for Occupational Health (JSOH)
Recommended Occupational Exposure Limits : Not established

Protective equipment

- Wear appropriate protective gloves and protective eyewear to prevent eye and skin from contacting the substance

9. Physical and Chemical Properties

- Appearance, etc. : Colorless and transparent liquid at ambient temperatures
- Melting point : Approximately 0°C
- Flash point : No data available
- Ignition point : No data available
- Explosive property : No data available
- Density : 0.997 g/cm³ (25 °C)
- Solubility : Mixes freely with water,

10. Stability and Reactivity

Not hazardous if stored or handled in normal condition

- ◇ Heating • combustion : Harmful if arsenic compound gasification occurs and its vapor inhaled
- ◇ Contact with water : Not hazardous
- ◇ Contact with air : Not hazardous

11. Toxicological Information

Acute toxicity (RTECS)

◇ Arsenobetaine (oral toxicity)

- Mouse LD50 : > 10 mg/kg

Mutagenic property

- No data available

Carcinogenicity

- No data available

12. Ecological Information

Residual persistency • Concentration

- No data available

Bioaccumulation Potential

- No data available

13. Disposal considerations



- Combustion method : Mix with combustible solvent and burn in an incinerator equipped with scrubber and afterburner
- Disposal by a commissioned professional waste disposal contractor authorized by a prefectural governor

14. Transport information

- Avoid direct sunlight, ensure no leakage from the container, do not drop or break the container when loading

15. Applicable laws and regulations

- ◇ Fire Defense Law
 - Not applicable
- ◇ Poisonous and Deleterious Substances Control Law
 - Article 2, Supplementary provision 1, Poisonous substance (arsenic compound and arsenic-containing products)
- ◇ Industrial Safety and Health Law
 - Article 57, 2 (Law Supplementary provision Article 18, 2) harmful substances required of notification
- ◇ Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof (PRTR Act)
 - Not applicable

This MSDS 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

The stated safety information is drawn up based on the materials and data available at present, and does not purport to be all inclusive and shall be used as a guide. Moreover, precautional information is intended for the normal handling; therefore, if the substances are subjected to a special handling, the appropriate safety measures should be taken according to the use.

The purpose of this safety data is to provide the information, and the use of any information on the data sheet is at the reader's own risk. AIST shall not be held liable for any damage resulting from handling or from contact with the above product.
