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
Emergency Contact: Same as above

Prepared on: September 25, 2015
Revised on: March 31, 2017
ID Number: 601700

Identity of Substance/Mixture: Certified reference material: NMIJ CRM 6017-b
Recommended Use: L-Arginine
Recommended Use of the Chemical and Restriction on Use: This reference material is primarily intended for use in calibrating the analytical instruments and preparation of the standard solution in amino acid analysis. It is also intended for controlling the precision of analysis, and confirming the validity of analytical methods or instruments. Do not use this reference material for other purposes than testing/research.

2. Hazard Identification

GHS classification: Not applicable
GHS label element: -
Signal word: -
Hazardous Statement: Harmful if inhaled or orally ingested in high concentration. Causes irritation to eyes, throat and mucous membrane. Highly degradable
Other Hazards Statement: [Precaution]
Precautionary Statement:
If inhaled: Remove victim to fresh air. Keep victim warm with blanket etc. and keep at rest.
Get medical advice/attention.
If on skin: Rinse away with plenty of soap and water. Get medical advice/attention as required.
If in eyes: Rinse away with clean water immediately. Get medical treatment.
If ingested: Make victim drink water or salt solution to induce vomiting. Get medical advice/attention if there is any problem.
[Storage]
This material should be kept at 15 °C to 25 °C and shielded from light in a clean desiccator.

[Disposal]
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 covered by the GHS.

3. Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Substance/Mixture</th>
<th>Chemical Identity</th>
<th>Synonym</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>:</td>
<td>:</td>
<td>:</td>
<td>99.8 %</td>
</tr>
<tr>
<td>Chemical Identity</td>
<td>: L-Arginine</td>
<td>: L(+)-Arginine, (S)-5-guanidino-2-aminopentanoic acid</td>
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<tr>
<td>Synonym</td>
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<td>:</td>
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<tr>
<td>Content</td>
<td>: H₂N(C(NH₃)NH(CH₂)₂CH(NH₂)COOH</td>
<td>99.8 % or over</td>
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<tr>
<td>Chemical Formula</td>
<td>or</td>
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<tr>
<td>Structural Formula</td>
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<tr>
<td>Molecular Weight</td>
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<tr>
<td>Content</td>
<td>: 99.8 % or over</td>
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<tr>
<td>Reference Number</td>
<td>:</td>
<td>: Act on the Evaluation of Chemical Substances and Regulation</td>
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<tr>
<td>in GazetteList in Japan</td>
<td></td>
<td>of Their Manufacture, etc. : (2)-1307</td>
<td></td>
</tr>
<tr>
<td>CAS Number</td>
<td>: 74-79-3</td>
<td>: Printed</td>
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</tr>
</tbody>
</table>

4. First-Aid Measures

If in Eyes : Rinse away thoroughly with clean water immediately. Get medical advice/attention.
If on Skin : Rinse away with plenty of soap and water. Get medical advice/attention as required.
If Inhaled : Remove victim to fresh air. Keep victim warm and at rest. Get medical advice/attention.
If Ingested : Make victim drink water to induce vomiting. Get medical advice/attention if there is any problem.
Measures to be taken to protect the person applying first aid : Use personal protective equipment.

5. Fire-fighting Measures

Extinguishing Media : Water spray, Dry chemical extinguishing agent
Fire-Specific Hazards : As irritating or toxic gas is generated in the case of fire, use appropriate personal protective equipment to avoid breathing it.
Specific Fire-Fighting : Eliminate ignition sources at the origin of a fire and put out fire
Method

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 compressed air open-circuit self-contained breathing apparatus as necessary.

6. Accidental Release Measures

Personal Precaution, 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 Prevention of Secondary Disaster:

Collect spillage in empty containers. Rinse away the remains with plenty of water. 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:

Avoid contact with acidic substances as this reference material is alkali. Handle this reference material in dry ambiance and use it promptly after opening package as it is highly hygroscopic. Strongly recommended to open package and use this reference material in an environment with relative humidity of about 70 % or less.

Precautions:

Avoid rough handling such as turning over, dropping, giving a shock to or dragging containers. Prevent spill, overflow and scattering, and avoid dust and 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.
Precautions for Safe Handling: Use appropriate personal protective equipment to avoid inhalation and contact with eyes, skin and clothing. Use local ventilation system when using this reference material in an indoor workplace.

Storage: Appropriate Storage Conditions: This material should be kept at 15 °C to 25 °C and shielded from light in a clean desiccator.

Engineering Precautions: Nothing special

Incompatible Substances: No data available

Safe Container Packaging Material: Polyethylene

8. Exposure Controls/Personal Protection

Threshold Limit Value
Not specified

Permissible Concentration
- ACGIH TLV-TWA: Not specified
- Value recommended by Japan Society for Occupational Health: Not specified
- OSHA PEL TWA: Not specified

Engineering Controls
Ventilation/Exhaust: Keep container tightly closed and install local ventilation system when dust is generated. Install facilities to rinse eyes and to wash hands and body in the vicinity of a place handling this reference material and label them.

Safety control/ Gas detection: -

Storage Precautions: This material should be kept at 15 °C to 25 °C and shielded from light in a clean desiccator.

Personal Protective Equipment (PPE)
- Respiratory System: Dust protective mask
- Hands: Protective gloves
- Eyes: Eye protector (Goggle type as necessary)
- Skin and Body: Protective clothing with long sleeves

Hygiene measure: Treat in accordance with rules on Industrial hygiene and Industrial safety.

9. Physical and Chemical Properties
- Appearance, etc.: Powder
- Color: White
10. Stability and Reactivity

◇ Stability
  • Changed by light

◇ Reactivity
  • Strongly basic due to presence of guanidine group. Its aqueous solution absorbs carbon dioxide (CO₂) in air.

◇ Conditions to Avoid
  • Sunlight, Heat, Air

◇ Hazardous Decomposition Products
  • Carbon monoxide (CO), Nitrogen oxide

11. Toxicological Information

No data available

12. Ecological Information

Persistence and Degradability
  • Degree of degradation: 60 % by BOD (METI Existing Chemical Substance Safety Check)
  • Degree of degradation: 99 % by TOC (METI Existing Chemical Substance Safety Check)

Bioaccumulative Potential
  • No data available

Ecotoxicity
  • No data available

13. Disposal Considerations

Residual Waste: Incineration method
  Incinerate in an incinerator equipped with scrubber.
  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.

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

14. Transport Information

UN Number : Not applicable
UN Classification : Not applicable
Shipping Name : -
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

• No applicable laws and regulations

16. Other Information

Other
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.