# 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 : January 21, 2010 |
| | | Revised on : August 31, 2022 |
| | | Reference No. : 6016001 |
| Identification of the Material | : | Certified Reference Material NMIJ CRM 6016-a<br>L-Proline |
| Recommended Use of the Chemical and Restriction on Use | : | This reference material can be used, in amino acid analysis, for preparation of standard solution, calibration of analysis equipment and validation of analysis method/equipment. Do not use this reference material for other purposes than testing/research.<br>This CRM is a reference material (specified in the Japanese Industrial Standard (JIS) Q 0030). |

## 2. Hazards Identification

| | | |
|---|---|---|
| GHS Classification | : | Not classifiable |
| GHS Label element | : | - |
| Signal word | : | - |
| Hazard communication | : | - |
| Other hazard communication | : | Low in toxicity, but harmful if inhaled or ingested in large quantity.<br>Irritates eye, respiratory tract and mucous membrane. |
| Precautionary statement | : | [Preventive Measures]<br>Use appropriate protective equipment to prevent the inhalation and contact with eye, skin or clothing<br>[Response]<br>If inhaled : Remove from area of exposure and get some fresh air. Keep warm with a blanket and keep one at rest. Get medical treatment.<br>If on skin : Wash with soap and plenty of water. If necessary, get medical assistance<br>If in eye : Immediately flush with plenty of clean water and get medical treatment<br>If swallowed: Wash the mouth with water thoroughly, drink 1 to 2 |

glasses of water or milk. Get medical assistance if there is any abnormal condition.

[Storage]

Store in a clean desiccator at room temperature (about 15 °C to 25 °C) protected from light.

[Disposal]

Commission waste disposal to a specialized industrial waste disposal contractor licensed by the prefectural governor.

Hazardous and toxic properties not specified in the above are not subject to the classification or not classifiable.

## 3. Composition/Information on Ingredients

| | | |
|---|---|---|
| Single or compoound product | : | Single product |
| Chemical Ingredient Name | : | L-Proline |
| Other name | : | (S)-pyrrolidine-2-carboxylic acid |
| Content | : | 99.9 % |
| Chemical formula or structural formula | : | $C_5H_9NO_2$ |
| Molecular Weight | : | 115.13 |
| Reference Number in Gazetted List in Japan | : | Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. : (9-)1626<br>Industrial Safety and Health Act : Published |
| CAS No. | : | 147-85-3 |

## 4. First-aid Measures

| | | |
|---|---|---|
| If in eyes | : | Rinse with plenty of clean water, get medical assistance |
| If on skin | : | Wash with soap and plenty of water, if necessary, get medical assistance |
| If inhaled | : | Remove from area of exposure and get some fresh air, keep warm and rest. Get medical assistance |
| If swallowed | : | Wash the mouth thoroughly with water, drink 1 to 2 glasses or water or milk. Get medical treatment if there is any abnormal condition |
| Measures to be taken to protect the person applying first aid | : | Use personal protective equipment. |

## 5. Fire-fighting Measures

| | | |
|---|---|---|
| Extinguishing media | : | Water, powder, carbon dioxide, foam, dry sand |
| Specific hazards at the time of fire | : | May generate irritating or toxic gas |
| Specific extinguishing measures | : | Immediately remove combustible or ignitable materials from near the fire and start extinguishing with extinguishing agent, transfer |

| | | |
|---|---|---|
| | | movable containers to a safe place promptly, if impossible to move, cool the periphery of the container with water spray |
| Protecting fire- fighting personnel | : | Fire extinguishing activities from the windward and avoid inhaling toxic gas. Use personal protective equipment such as fire-safe clothing, air breathing apparatus, etc. as the situation demands. |

## 6. Accidental Release Measures

| | | |
|---|---|---|
| Personal precaution | : | If indoor、ventilate well until the treating process is completed properly. |
| Protective equipment and emergency procedures | | Wear appropriate protective equipment to protect the skin from spattering droplets, etc. and prevent inhaling dust/particulate or gas |
| Environmental precautions | : | To prevent causing environmental impact, do not release products into rivers, etc. through drainage. Before discharging contaminated waste water, treat the waste water properly. |
| Collection, neutralization | : | Collect the leakage in a container. Wash down the leaked area with plenty of water. |
| Secondary disaster prevention | | Rope in the leakage area and prohibit the entrance of unauthorized persons. Work at windward and evacuate the people in leeward. |

## 7. Handling and Storage

Handlings

- Avoid unnecessary dust generation causing leakage, spillage, scattering, etc.
- Use appropriate protective equipment to avoid contact with eye, skin, clothing, etc.
- No eating, drinking and smoking when working
- Wash hands, face, etc. and gargle well after the handling
- Restrict the access to the handling area
- Store the product in an airtight container
- Use of the product is restricted to research experiments
- Do not use the product for in vivo experiments

Storage

- Protect from light and store in a clean desiccator at room temperature (about 15 °C to 25 °C).

## 8. Exposure Controls/Personal

Administrative Level

Not established

Occupational exposure limit

| | | |
|---|---|---|
| ・ACGIH TLV-TWA | : | Not established |
| ・Japan Society for Occupational Health recommended reference value | : | Not established |
| ・OSHA PEL TWA | : | Not established |

Facility engineering control

| | | |
|---|---|---|
| Ventilation, exhaust | : | If generating dust/particle, seal the source of release and install local exhaust ventilation equipment<br>Install eye wash facility and emergency safety shower and indicate their location with signage conspicuously |
| Safety control, gas detection | : | - |
| Storage precaution | : | Protect from light and store in a clean place at room temperature (about 15 °C to 25 °C) |
| Protective equipment | | |
| Respiratory tract protection | : | Dust protective mask |
| Hands | : | Protective gloves |
| Eyes | : | Protective eyeglasses (safety goggles if needed) |
| Skin and body | : | Long-sleeved protective clothing |

## 9. Physical and Chemical Properties

| | | |
|---|---|---|
| ・Appearance, etc. | : | Powder |
| ・Color | : | White |
| ・Odor | : | No data |
| ・pH | : | No data |
| ・Melting point | : | 220 °C to 222 °C (decomposition) |
| ・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 | : | Easily soluble in water, slightly soluble in ethanol, non-soluble in diethyl ether |
| ・*n*-Octanol/water partition coefficient (Log Po/w) | : | No data |
| ・Auto-ignition temperature | : | No data |

## 10. Stability and Reactivity

◇Stability

・Stable under normal condition

◇Reactivity

・Color reaction with ninhydrin to give yellow, with isatin blue. Reacts to nitrous acid to produce nitroso compound. Does not generate nitrogen

◇Condition to avoid

・Sunlight, heat

◇Hazardous decomposition products

・Carbon monoxide, nitrogen oxide

## 11. Toxicological Information

・No data available

## 12. Ecological Information

Degradability, concentration

・No data available

Bioaccumulation

・No data available

Ecotoxicity

・No data available

## 13. Disposal Considerations

・Disposal shall be in compliance with Laws and Regulations concerned, and ordinances of the local authorities

・Disposal of an empty container shall be after removing/decontaminating the content completely.

## 14. Transport Information

| | | |
|---|---|---|
| UN number | : | Not applicable |
| UN classification | : | Not applicable |
| Name | : | - |
| Marine pollutant | : | Not applicable |
| Precautions | : | Transfer with care avoiding direct sunlight, leakage or spill due to fall, keep away from sources of ignition. |

## 15. Regulatory Information

・ No applicable laws and regulations

◎ **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

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.