# 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 : December 27, 2017 |
| | | Revised on : August 31, 2022 |
| | | Reference No. : 6201003 |
| Identity of Substance/Mixture | : | Certified reference material: NMIJ CRM 6201-c<br>C-reactive Protein Solution |
| Recommended Use of the Chemical and Restriction on Use | : | This reference material can be used, for calibration of analysis equipment in C-reactive Protein Solution analysis, quality control and validation/calibration of standard solutions. This reference material can also be used for calibration of analysis equipment and validation of analysis method/equipment of proteins based on the amino acid analysis. In case of use in immunological analysis and calibration of standard solutions such as serum, confirm the commutability of this reference material. 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 applicable |
| GHS label element | : | - |
| Signal word | : | - |
| Hazard and toxicity | : | - |
| Other hazard and toxicity | : | Low hazardous nature in normal handling, but harmful, if inhaled or swallowed in large amounts. |
| Precautionary statement | : | [Safety Precaution]<br>Use appropriate personal protective equipment<br>[First-Aid Measure]<br>Get medical advice/attention as required.<br>[Storage]<br>Store in a clean environment at refrigeration temperature (around 4 °C).<br>Do not let this reference material become frozen.<br>[Disposal]<br>Incinerate in small portions in an incinerator equipped with a scrubber. If an incinerator is not available, entrust disposal of this reference material to a professional waste disposal company licensed by the prefectural governor.<br><br>The other hazards than the above do not result in classification or are not covered by the GHS. |

## 3. Composition/Information on Ingredients

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|---|---|---|
| Substance/Mixture | : | Mixture |
| Chemical name | : | C-reactive Protein Solution |
| Synonym | : | - |
| Chemical formula | : | - |
| Molecular weight | : | 23028 |
| CAS number | : | 99401-15-7 |
| Content | : | 40 μmol/kg<br>This solution also contains ingredients shown below;<br>0.14 mol/L NaCl, 2 mmol/L $CaCl_2$, and 0.05 % $NaN_3$, and 20 mmol/L trishydroxymethyl-aminomethane-hydrochloric acid buffer solution (pH 7.5). |
| Reference Number in Gazetted List in Japan | : | Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. : -<br>Industrial Safety and Health Act : - |

## 4. First-aid Measures

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| If in eyes | : | Rinse away immediately with clean water for 15 minutes or more. Get medical advice/attention. |
| If on skin | : | Rinse away with plenty of soap and water. Get medical advice/attention as required if symptoms are observed. |
| If inhaled | | Remove victim to fresh air and keep at rest and warm. Get medical advice/attention. |
| If swallowed | : | Rinse mouth and make victim drink plenty of water. Get medical advice/attention immediately. |
| The most important characteristics and symptoms | : | - |
| Measures to be taken to protect the person applying first aid | : | Use personal protective equipment.<br>Rubber gloves, safety goggles |

## 5. Fire-fighting Measures

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| Extinguishing Media | : | Water, Powder, Carbon dioxide ($CO_2$), Foam, Dry sand |
| Fire-Specific Hazards | : | In the case of fire, irritating, irritating or toxic fume (or gas) may be generated. |
| Specific Fire-Fighting Method | : | 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 protective clothing and compressed air open-circuit self-contained breathing apparatus. |

## 6. Accidental Release Measures

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| Personal Precaution | : | Eliminate potential ignition sources in the vicinity promptly. Get fire-fighting kit ready to be prepared for ignition. |
| Personal Protective | : | Ventilate the affected areas thoroughly, if it is in an indoor environment, |

| | | |
|---|---|---|
| Equipment and Emergency Procedures | | until the clean-up operation is completed.<br>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.<br>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 by getting it adsorbed to wiping cloth, rag or earth and sand, etc. Rinse away the remains with plenty of water. |
| Prevention of Secondary Disaster | : | Mark the restricted area with rope etc. to keep out unauthorized people.<br>Carry out the clean-up operation from the windward and make people on the leeward side evacuate. |

## 7. Handling and Storage

Handling

| | | |
|---|---|---|
| Engineering Precautions | : | Nothing special |
| Local and General Ventilation | : | Use local ventilation system in indoor handling areas. |
| Precautions for Safe Handling | : | Avoid rough handling such as turning over, dropping, shocking or dragging containers.<br>Keep the container tightly closed after using this reference material.<br>Wash hands, face etc. thoroughly and gargle with water after handling this reference material.<br>Do not bring gloves and other contaminated personal protective equipment into staff room.<br>Designate a restricted area for handling this reference material to keep out unauthorized personnel.<br>Use appropriate personal protective equipment to avoid inhalation and contact with eyes, skin and clothing. |

Storage

| | | |
|---|---|---|
| Appropriate Storage Conditions | : | Store in a cool and clean environment (around 4 °C). Do not let this reference material become frozen. |
| Safe Container Packaging Material | : | Polypropylene |

※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 established

Occupational exposure limit

| | | |
|---|---|---|
| ・ACGIH TLV-TWA | : | Not established |
| ・Japan Society for Occupational Health Recommended Reference | : | Not established |

Value

・OSHA PEL TWA : Not established

Facility engineering control

Ventilation/Exhaust : Local or general ventilation system

Safety Control/ Gas Detection : -

Storage Precaution : Keep away from strong oxidants.

Personal Protective Equipment (PPE)

Storage Precautions : Seal.
Install facilities to rinse eyes and to wash hands and body in the vicinity of a place handling this reference material and label them.

Respiratory System : Dust protective mask

Hands : Protective gloves

Eyes : Eye protector with side plates

Skin and Body : Protective clothing with long sleeves

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 : No data

・pH : 7.5

・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 : 1.0051 g/cm$^3$

・Solubility : Soluble in water

・*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 ; $Ca^{2+}$-dependent associativity to phosphorylcholine

Conditions to avoid ; Sunlight, heat

Incompatible materials ; No data available

Hazardous decomposition products ; No data available

## 11. Toxicological information

| | | |
|---|---|---|
| Acute toxicity | : | As sodium azide |
| | | Oral Rat LD50: 27 mg/kg (RTECS) |
| | | Inhalation Rat LC50: 37 mg/kg (RTECS) |
| | | Oral Mouse LD50: 27 mg/kg (RTECS) |
| Skin corrosivity/ irritation | ; | - |
| Severe damage to eyes/ eye irritation | ; | - |
| Respiratory sensitization | ; | - |
| Skin sensitization | ; | - |

## 12. Ecological Information

| | | |
|---|---|---|
| Ecotoxicity | : | No data available |
| Persistence and Degradability | ; | No data available |
| Bioaccumulation | : | No data available |
| Mobility in soil | ; | No data available |
| Ozone depletion potential | : | No data available |

## 13. Disposal Considerations

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|---|---|---|
| Residual waste | : | Incinerate in small portions in an incinerator equipped with a scrubber. If an incinerator is not available, entrust disposal of this reference material to a professional waste disposal company licensed by the prefectural governor. Disposal should be in compliance with related laws and regulations of the local government. |
| Contaminated container and package | : | Disposal of the empty container should be after the complete removal of the content. |

## 14. Transport Information

| | | |
|---|---|---|
| UN Number | : | Not applicable |
| UN Classification | : | – |
| Material name | : | – |
| Container grade | : | – |
| ICAO/IATA | : | Not applicable |
| 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. at refrigeration temperature (around 4 °C). Do not let this reference material frozen. |

## 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

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.