1. Identification of the Substance/Mixture and the Supplier

Supplier: National Institute of Advanced Industrial Science and Technology (AIST)
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Person in Charge: Person in Charge of Certified Reference Materials
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Prepared on: January 25, 2016
Revised on: March 31, 2017
ID Number: 6204002

Identity of Substance/Mixture: Certified reference material: NMIJ CRM 6204-b
Recommended Use of the Chemical and Restriction on Use: This CRM consists of five kinds of ribonucleic acid (RNA) solutions having different lengths (533 or 1033 bases of single-strand RNA) and sequences. This CRM is principally intended to be used to assign the value of an RNA sample for the evaluation and control of the precision of RNA analytical methods such as DNA microarray (DNA chip), quantitative reverse-transcription PCR method, and next-generation DNA sequencer. Do not use this reference material for other purposes than testing/research.

2. Hazards Identification

GHS Classification: No classification
GHS Label Element: -
Signal Word: -
Hazardous Statement: -
Precautionary Statement: [Safety Precaution]
[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 plenty of soap and water. Get medical advice/attention if you feel inflammation.
If in eyes: Rinse cautiously with water for 15 minutes or more. Remove contact lenses, if present and easy to do.
If eye irritation persists: Get medical advice/attention.
If swallowed: Rinse his/her mouth with plenty of water. Get medical advice/attention.
advice/attention if you feel unwell.

[Storage]
Store this CRM in dark and cool (at less than −20 °C) place.

[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.

The other hazards than the above do not result in classification or are not classifiable.

### 3. Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Substance/Mixture</th>
<th>Single substance (aqueous solution)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample name (1)</td>
<td>RNA500-A</td>
</tr>
<tr>
<td>Chemical Identity (1)</td>
<td>Ribonucleic Acid (RNA) (Accession number: AB610939 (6204-a-500-1))</td>
</tr>
<tr>
<td>Content</td>
<td>33.4 ng/mL</td>
</tr>
<tr>
<td>Molecuar Weight</td>
<td>171 603.8</td>
</tr>
<tr>
<td>Reference Number in Gazetted List in Japan</td>
<td>Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.</td>
</tr>
<tr>
<td></td>
<td>Industrial Safety and Health Act</td>
</tr>
<tr>
<td>CAS Number</td>
<td>-</td>
</tr>
<tr>
<td>Hazardous Ingredient</td>
<td>-</td>
</tr>
</tbody>
</table>

| Sample name (2)   | RNA500-B                            |
| Chemical Identity (2) | Ribonucleic Acid (RNA) (Accession number: AB610940 (CRM6204-a-500-2)) |
| Content           | 32.3 ng/mL                           |
| Molecuar Weight   | 171 906.1                            |
| 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        | -                                   |
| Hazardous Ingredient | -                              |

| Sample name (3)   | RNA500-C                            |
| Chemical Identity (3) | Ribonucleic Acid (RNA) (Accession number: AB610942 (6204-a-500-4)) |
| Content           | 32.1 ng/mL                           |
| Molecuar Weight   | 171 547.8                            |
| 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     |
4. First-aid Measures

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 plenty of soap and water.
  - If experiencing symptoms: Get medical advice/attention as necessary.

If in eyes
- Rinse cautiously with clean water for over 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

If swallowed
- Rinse mouth thoroughly with water. Get medical advice/attention.

Future 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
- Powder, foam, carbon dioxide, dry sand, water spray.
Fire-Specific Hazards: In case of fire, may emit irritating or toxic fume (or gas).
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 groves, 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 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 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 Precautions for Safe Handling: 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 sunlight. Seal the case and store in a freezer (less than –20 °C).
- Incompatible Materials: No data
- Safe Container: Polyethylene, polypropylene

8. Exposure Controls/Personal Protection

Threshold Limit Value
- Not specified

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

Engineering Controls
- Ventilation/Exhaust: When vapor or mist is generated, seal the source, and provide local exhaust ventilation or central ventilation.
- Safety Control/Gas Detection: -
- Storage Precaution: -

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 samples in 5 vials
- Color: Clear and colorless
- Odor: Odorless
- pH: No data
- Melting point: No data
- Boiling point: No data
- Flashing point: 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
• No data available

12. Ecological Information
Persistence and Degradability
• No data available
Bioaccumulative Potential
• No data available
Ecotoxicity
• No data available

13. Disposal Considerations
Residual Waste : Incineration method
Incinerate in an incinerator equipped with scrubber
Dispose in accordance with applicable legislation and local government ordinance.
When the above-mentioned treatments are not possible, entrust disposal of this reference material to a professional waste disposal company licensed by local or national authority.
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
: -

### Packing Group
: -

### Marine Pollutant
: Not applicable

### Precautions
: Check before transport if containers are free from leakage. Load in a way to avoid overturning, falling and being broken, and take all necessary measures to prevent collapsing. Taking into account the storage conditions, transport and maintain the frozen state.

### 15. Regulatory Information
- No applicable laws and regulations

### 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.