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 : August 29, 2007
Revised on : March 31, 2017
ID Number : 6005001

Identity of Substance/Mixture : Certified reference material
Recommended Use of the Chemical and Restriction on Use : This CRM is intended for use in the calibration of analytical instruments, quality control of analytical instruments, and validation of analytical techniques and instruments. Do not use this reference material for other purposes than testing/research.

2. Hazards Identification

GHS Classification : Not Classifiable
GHS label element : Not Classifiable
Signal word : -
Hazard and toxicity : -
Other hazard and toxicity : Creatinine is found in animal urine and has no specific toxicity, but if taken orally, may induce nausea, vomit, etc.
Precautionary statement [Preventive Measures]
[Handling]
If swallowed: Induce vomit by drinking water or salted water.
Get medical assistance
[Storage]
Protect from light, clean place at normal temperature 15 °C to 25 °C
[Disposal]

Hazardous and toxic properties not specified in the above are neither the object of classification nor classifiable

3. Composition/Information on Ingredients

NMIJ CRM 6005-a
Substance or mixture : Single product  
Chemical name : Creatinine  
Synonym : 2-imino-1-methyl-4-imidazolidinone  
Content : 99.9 %  
Chemical or structural formula : C₄H₇N₃O  
Molecular weight : 113.12  
Reference Number in Gazetted List in Japan : Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. : (9)-408  
Industrial Safety and Health Act : Published  
CAS No. : 60-27-5  

4. First-aid Measures  
If in eyes : Rinse off with plenty of clean water, get medical assistance  
If on skin : Rinse off with plenty of clean water, take off the contaminated clothing or shoes, etc. get medical assistance  
If inhaled : Move to fresh air area, rest and keep warm. Get medical assistance  
If swallowed : Drink a lot of water to induce vomit. If abnormality arises, get medical assistance  
Anticipated acute & delayed symptoms : No data available  
Most significant characteristics & symptoms : No data available  
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 irritant, toxic fume (or gas) if burned  
Specific extinguishing measure : Immediately remove fire source materials around and start extinguishing. Transfer movable containers promptly to safe place. If impossible to transfer, cool down around the container with water spray.  
Fire fighting personnel protection : Avoid inhaling toxic gas by extinguishing from windward. Use protective equipment such as breathing apparatus, etc.  

6. Accidental Release Measures  
Personal precaution : Remove ignition source around the material promptly. Have fire extinguisher ready in case of fire.  
Protective equipment and emergency : If indoor, ventilate well until the treatment is completed. Use appropriate protective equipment to protect the skin from
procedures: spattering droplets and prevent inhaling dust/particulate or gas

Environmental precautions: Prevent the environment from being contaminated by the spilled products or material discharged to rivers, etc. Contaminated waste water must be treated appropriately before discharging.

Recovery, neutralization: Recover the leakage in an empty container and clean the contaminated area with waste cloth, scrubbing cloth, etc.

Secondary disaster prevention: Rope off the leakage area and prohibit unauthorized persons’ entrance. Work on the windward and evacuate people on the leeward.

7. Handling and Storage

Handling

Technical measures: Avoid contact with eye and skin
Local exhaust or central ventilation: When handling indoor, use local exhaust ventilation
Safe handling precautions: Handle the container with care and avoid knocking over, dropping or dragging.
Prevent leakage, overflow or spatter and control dust generation.
Seal-up the container after use
Wash hands, face etc. thoroughly and gargle after handling
Eating, drinking or smoking restricted in designated areas only
Take off contaminated gloves and protective equipment when taking a break outside the handling area.
Entrance to the handling area is restricted to authorized persons only

Storage

Safe storage condition: Protect from light, clean place at normal temperature (15 °C to 25 °C)
Safe packaging material: Glass

8. Exposure Controls/Personal Protection

Standard control concentration
Not established

Maximum permissible concentration
(Threshold limit value)

- ACGIH TLV-TWA: Not established
- Japan Society for Occupational Health Recommended value: Not established
- OSHA PEL TWA: Not established

Facility engineering control
Ventilation, exhaust: If generating dust, seal up the source and install local exhaust equipment
Install eye washer and shower facility close to the
Safety control, detection : -
Storage precaution : Protect from light, store in clean place at normal temperature (15 °C to 25 °C)

Protective equipment
- Respirators : Dust protective mask
- Hand protection : Protective gloves
- Eye protection : Safety goggle
- Skin and body protection : Long sleeved protective wear

9. Physical and Chemical Properties
- Appearance, etc. : Powder
- Color : White
- Odor : Odorless
- pH : Water solution is basic
- Melting point : Degradation (280 °C to 295 °C)
- 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 dissolves in water, slightly soluble in ethanol, poorly soluble in ether
- Octanol/water partition coefficient (Log Po/w) : No data
- Auto-ignition temperature : No data

10. Stability and Reactivity
◇ Stability
- Light sensitivity
◇ Reactivity
- Strong base, reacts to form acid and salt. Adduct induced with Zinc Chloride. Reacts with alkaline and changes to Creatinine. Hydrolyze to sarcosine, methylhydantoin, urea and ammonia by strong alkali.
◇ Condition to avoid
- Sunlight, heat
◇ Hazardous toxic 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
Residues
: Incineration
   Incinerate in the incinerator with a scrubber system.
   Dispose the contents and container in accordance with related
   regulations and ordinances of the local government. If
   disposal according to the above method is not possible, use a
   waste-treatment firm certified by prefectural governor.

Contaminated containers and packaging
: To dispose of an empty container, completely remove the
  contents.

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 etc., keep away from fire sources

15. Regulatory Information
・ None applicable

◎ 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 Safety Data Sheet is not intended to be exhaustive and is based on
currently-available information and data. The precautions given in this data sheet are
applicable only to normal handling conditions. When handling this reference material under
special conditions etc., it is recommended to take safety precautions appropriate to each
specific application and context of use. This Safety Data Sheet (SDS) is intended to provide
information and not intended to guarantee anything in handling the reference material.