

# Safety Data Sheet



## 1. Identification of the Substance/Mixture and the Supplier

Supplier : National Institute of Advanced Industrial Science and Technology (AIST)  
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 Office in Charge : Reference Materials Office, Center for Quality Management of Metrology, National Metrology Institute of Japan  
 Person in Charge : Certified Reference Material Staff  
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 Emergency Contact : Same as above

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Identity of Substance/Mixture : Certified reference material: NMIJ CRM 3012-a  
 Tris(hydroxymethyl)aminomethane  
 Recommended Use of the Chemical and Restriction on Use : This reference material can be used as reference for titration etc. Do not use this reference material for other purposes than testing/research.  
 This CRM is a reference material (specified in the Japanese Industrial Standard (JIS) Q 0030).

## 2. Hazards Identification

GHS Classification: Skin corrosion/irritation : Hazard Category 2  
 Serious eye damage/ Eye irritation : Hazard Category 2A

GHS Label Element:



Signal Word : Warning  
 Hazards Statement: Skin corrosion  
 Strong eye irritation

Other Hazards Statement : -

Precautionary Statement : [Precaution]  
 Wash hands thoroughly after handling.  
 Wear eye protector/face protection/protective gloves.  
 [Action]  
 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 Get medical advice/attention if eye irritation persists.  
 If on skin: Wash with plenty of soap and water. If skin irritation

occurs: Get medical advice/attention.

Remove/Take off contaminated clothing and wash before reuse.

[Storage]

Protect from sunlight. Store in clean environment with relative humidity of 60 % or less at temperature of 15 °C to 35 °C.

[Disposal]

Comply 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

Substance or mixture	: Substance
Chemical Identity	: 2-amino-2-hydroxymethyl-1,3-propanediol
Synonym	: Tris(hydroxymethyl)aminomethane
Content	: 99.0 % or more
Chemical Formula or Structural Formula	: C <sub>4</sub> H <sub>11</sub> NO <sub>3</sub>
Molecular Weight	: 121.14
CAS Number	: 77-86-1
Content	: Over 99 %
Reference Number in Gazetted List in Japan	: Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. : (2)-318 Industrial Safety and Health Act : Published
Hazardous Ingredient	: 2-amino-2-hydroxymethyl-1,3-propanediol

### 4. First-aid Measures

If in eyes	: Rinse thoroughly with clean water. Get medical advice/attention.
If on skin	: Wash the affected area thoroughly with soap or plenty of water.
If inhaled	: Remove victim to fresh air and rinse mouth/gargle thoroughly. If symptoms occur: Get medical advice/attention.
If swallowed	: Rinse mouth. Give plenty of water to dilute and induce vomiting. Do not give anything by mouth to an unconscious person. Get medical advice/attention.
Expected Acute and Delayed Symptom	: -
Most Critical	: -
Characteristic and Symptom	
Measures to be taken to protect the person applying	: Use personal protective equipment.

first aid

## 5. Fire-fighting Measures

- Extinguishing Media : Water, Dry chemical extinguisher, Carbon dioxide, Foam, Dry sand.
- Fire-Specific Hazards : May generate irritating or hazardous fumes (or gases) in case of fire.
- 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.
- Protection of Fire-Fighters : Carry out fire-fighting from the windward in order to avoid breathing hazardous gas. Use personal protective equipment such as fireproof clothing, heat-resistant clothing, protective clothing, compressed air open-circuit self-contained breathing apparatus, compressed oxygen closed-circuit self-contained breathing apparatus, rubber gloves and rubber boots.

## 6. Accidental Release Measures

- Personal Precaution : Remove potential ignition sources from the vicinity promptly. Get fire-fighting kit ready to be prepared for ignition.
- 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 : 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. 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 strong oxidizers.
- Local and General Ventilation : Keep container tightly closed and use local ventilation system if vapor/mist is generated.
- Precautions for Safe : Avoid rough handling such as turning over, dropping, giving a

Handling	<p>shock to or dragging containers.</p> <p>Prevent spill, overflow and scattering, and avoid vapor generation.</p> <p>Keep container tightly closed after use.</p> <p>Wash hands, face etc. thoroughly and gargle after handling this reference material.</p> <p>Restrict drinking, eating and smoking to a designated area.</p> <p>Do not bring gloves and other contaminated personal protective equipment into staff room.</p> <p>Make a place handling this reference material a restricted area to keep out unauthorized people.</p> <p>Use appropriate personal protective equipment to avoid inhalation and contact with eyes, skin and clothing.</p> <p>Use local ventilation system in indoor handling area.</p>
Storage	
Appropriate Storage Conditions	: Protect from sunlight. Store in clean environment with humidity of 60 % or less at temperature of 15 °C to 35 °C.
Safe Container Packaging Material	: Glass, Polyethylene, Polypropylene

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## 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	: Local ventilation system or General ventilation system
Safety Control/ Gas Detection	: -
Storage Precaution	: Protect from sunlight. Store in tightly-closed container in a well-ventilated and cool place.
Personal Protective Equipment (PPE)	
Respiratory System	: Dust mask
Hands	: Protective gloves
Eyes	: Eye protector with side plates (Goggle type as necessary)
Skin and Body	: Work wear with long sleeves
Hygiene Controls	
Install facilities to rinse eyes and to wash hands and body in the vicinity of a place handling this reference material and label them.	

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## 9. Physical and Chemical Properties

• Appearance, etc.	: Crystalline powder
• Color	: White
• Odor	: No data

- pH : 10.0 to 10.8 (0.1 mol/l, 25 °C)
- Melting point : 169 °C to 173 °C
- Boiling point : 219 °C to 220 °C (10 mmHg)
- 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. Soluble in ethylene glycol, methanol, ethanol and DMF. Hardly soluble in acetone. Insoluble in chloroform.
- *n*-Octanol/water partition coefficient (Log Po/w) : No data
- Auto-ignition temperature : No data

## 10. Stability and Reactivity

### ◇Stability

- Not hygroscopic and stable at room temperature for a long time. Used as TRIS buffer. This reference material features strong buffer action at pH of 7.0 to 9.0. The buffer solution does not inhibit enzyme reaction and can be stored for a long time.

### ◇Reactivity

- No data available

### ◇Conditions to Avoid

- Sunlight, Heat, Strong oxidizers

### ◇Hazardous Decomposition Products

- Carbon monoxide, Carbon dioxide, Nitrogen oxide

## 11. Toxicological Information

Acute Toxicity	Oral Rat LD50 > 3000 mg/kg Intravenous Rat LD50 = 1800 mg/kg Oral Mouse LD50 = 5500 mg/kg Intravenous Mouse LD50 = 1210 mg/kg
Skin Corrosion/ Irritation	No data available
Serious Eye Damage/ Eye Irritation	No data available
Germ Cell Mutagenicity	No data available
Carcinogenicity	No data available

## 12. Ecological Information

### Persistence and Degradability

- No data available

### Bioaccumulative Potential

- No data available

Ecotoxicity

- No data available

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### 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 emptying them.

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### 14. Transport Information

- UN Number : Not applicable  
UN : Not applicable  
Classification  
Shipping Name : -  
Packing Group : -  
ICAO/IATA : -  
Marine : Not applicable  
Pollutant  
Precautions : Transport this reference material carefully while keeping it away from direct sunlight and fire and preventing accidental release due to falling, overturning, etc.

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### 15. Regulatory Information

No applicable legislation

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### 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.