

# 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  
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Identification of the Material : Certified Reference Material NMIJ CRM 6004-a  
 17β-Estradiol  
 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.  
 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 and toxicity : -  
 Other hazard and toxicity : Irritating on contact with eyes, skin and mucous membrane. Oral ingestion may cause coughing, headache, dizziness, nausea, vomiting and abdominal pain, etc.  
 Identified as a carcinogen (NTP:Group R)  
 Precautionary statement : [Preventive measures]  
 Use protective equipment to prevent inhalation, contact with eyes, skin and the clothing.  
 [Response]  
 If inhaled : Move to a fresh air, cover and warm the body with a blanket, and rest. Seek medical advice.  
 If on skin : Rinse with a large amount of water and soap. Seek medical advice as needed.  
 If in eyes : Rinse with clean water immediately and seek medical advice

If swallowed: Induce vomiting by drinking water or saline solution and seek medical advice.

[Storage]

Protect from light, and store in a clean place at a temperature of about 5 °C

[Disposal]

Disposal of this material should be outsourced to a professional industrial waste disposal contractor licensed by the prefectural governor.

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

### 3. Composition/Information on Ingredients

Single or compound product	:	Single product
Chemical name	:	17β-Estradiol
Other name	:	Estra-1,3,5(10)-triene-3,17β-diol
Mass fraction (kg/kg)	:	98.4 %
Chemical or structural formula	:	C <sub>18</sub> H <sub>24</sub> O <sub>2</sub>
Molecular weight	:	272.38
Content	:	About 98.4 %
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 No.	:	50-28-2
Hazardous component	:	-

### 4. First-aid Measures

If in eyes	:	Rinse with plenty of water immediately and seek medical advice.
If on skin	:	Rinse with a large amount of water and soap. Seek medical advice as needed.
If inhaled	:	Move to a fresh air, keep warm and rest. Seek medical advice
If swallowed	:	Drink a large amount of water to induce vomiting. Seek medical advice.
Measures to be taken to protect the person applying first aid	:	Use personal protective equipment. Rubber gloves, safety goggles

### 5. Fire-fighting Measures

Extinguishing media	:	Water spray, fire extinguishing powder
Specific hazards at the time of fire	:	When involving in extinguishing activity, use suitable protective equipment to avoid inhaling irritating or toxic gases generated at the time of fire.

- Specific extinguishing measures : Remove combustible sources from the seat of fire and extinguish using appropriate extinguishing agent.  
Transfer the movable container to a safe place promptly. If impossible to transfer, use water spray to cool the periphery.
- Protecting fire-fighting personnel : Extinguishing activities on windward side, avoid inhaling toxic gases Use protective equipment such as self-contained compressed air breathing apparatus, etc. depending on the situation

## 6. Accidental Release Measures

- Personal precautions, protective equipment and emergency procedures : If released indoor, ventilate well until the treatment is completed.  
Use suitable protective equipment to protect the skin from and avoid inhaling the suspended solids, etc..
- Environmental precautions : To prevent causing environmental impact, do not release the spilled material into rivers, etc. directly. Treat the contaminated waste water appropriately before discharging to the environment.
- Recovery, neutralization : Sweep up together the spilled material and collect in an empty container. Wipe the spilled spot with waste cloth or wiper, etc.
- Measures to prevent secondary accident : Rope-off the leaked area and restrict access only to the authorized persons. Evacuate the people on the leeward and work on the windward side.

## 7. Handling and Storage

### Handling

- Take measures to prevent spill, overflow, and scatter, and control the dust from forming.
- Use suitable protective equipment to prevent contact with eyes, skin and clothing.
- No eating, drinking, or smoking when handling
- Before opening the container, bring the content to a normal temperature.
- Having hygroscopic property, consume this material within a short period of time.
- Wash hands, face, etc. well and gargle after handling.
- Entering the handling area only by the authorized persons
- Use of this material exclusively for testing and research purposes.
- Do not use this material for in vivo experiments.

### Storage

- Store in a clean place protected from light at a temperature of about, 5 °C

※The precautions pertaining to an appropriate storage condition and handling as a reference material can be referred to the authentication certificate.

## 8. Exposure Controls/Personal Protection

Administrative level  
Not established

Occupational exposure level	
•ACGIH TLV-TWA	: Not established
•Japan Society for Occupational Health Recommended Reference Value	: Not established
•OSHA PEL TWA	: Not established
Facility engineering	
Ventilation, exhaust	: Enclose the source and install local ventilation system when handling indoor. Install safety shower, eye washer nearby, and indicate their location
Safety management, gas detection	: -
Protective equipment	
Respiratory organ	: Protective mask
Hands	: Protective gloves
Eyes	: Protective glasses
Skin and body	: Long sleeved protective clothing

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## 9. Physical and Chemical Properties

•Appearance, etc.	: Powder
•Color	: White
•Odor	: No data
•pH	: No data
•Melting point	: 174 °C to 180 °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	: Miscible in 1,4-dioxane, slightly miscible in acetone, slightly insoluble in ethanol, almost insoluble in water
• <i>n</i> -Octanol/water partition coefficient (Log Po/w)	: No data
•Auto-ignition temperature	: No data

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## 10. Stability and Reactivity

- ◇Stability
  - Stable under normal condition
  - Hygroscopic property
- ◇Conditions to avoid

- Sunlight, heat, humidity
- ◇Hazardous decomposition products
  - Carbon monoxide

## 11. Toxicological Information

Acute toxicity	:	Subcutaneous rat	LD:>300 mg/kg(RTECS)
		Subcutaneous rat	TDL <sub>o</sub> :10 µg/kg(RTECS)
		Abdominal cavity rat	TDL <sub>o</sub> :150 µg/kg(RTECS)
		Subcutaneous mouse	TDL <sub>o</sub> :400 mg/kg(RTECS)
Skin corrosivity/irritation	:	No data available	
Severe damage to eyes/ eye irritation	:	No data available	
Germ cell mutagenicity	:	No data available	
Carcinogenicity	:	NTP: Group R (carcinogenic to humans)	

## 12. Ecological Information

Degradability, concentration

- No data available

Bioaccumulation

- No data available

Ecotoxicity

- No data available

- Disposal in compliance with the relevant laws and regulations as well as the ordinances of the local government
- The container should be cleared and emptied completely before disposing of.

## 14. Transport Information

UN No.	:	Not applicable
UN classification	:	Not applicable
Marine pollutant	:	Not applicable
Precautions	:	Do not handle roughly, no dropping, falling or damaging when loading. Ensure to prevent the container from collapsing. Avoid sunlight.

## 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.

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