

# 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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 Prepared on : 4021001

Identity of Substance/Mixture : Certified Reference Material NMIJ CRM 4021-a Ethylbenzene Material  
 Recommended Use of the Chemical and Restriction on Use : This reference material can be used for calibration of analysis equipment as well as quality control of equipment and validation of analysis method/equipment. 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 :

Ignitable liquid	: Class 2
Skin corrosivity/irritant	: Class 3
Severe damage to eyes/eye irritant	: Class 2B
Acute toxicity (Oral)	: Class 5
Acute toxicity (Inhalation)	: Class 4
Carcinogenicity	: Class 2
Reproductive toxicity	: Class 1B
Particular target organ/systemic toxicity (Single exposure)	: Class 2 (Central nervous system) Class 2 (Respiratory tract irritant)
Aspiration respiratory hazard	: Class 1
Water environment toxicity(Acute)	: Class 1

GHS label element :



Signal word :	Danger
Hazard and toxicity :	<p>Highly ignitable liquid and vapor</p> <p>Mild skin irritant</p> <p>Eye irritant</p> <p>May have adverse effect if swallowed</p> <p>Toxic if inhaled</p> <p>Potential carcinogenicity</p> <p>May have adverse effects on reproductive function and fetus</p> <p>May have adverse effects on organ (Central nervous system)</p> <p>May be irritating to respiratory organ</p> <p>May be lethal if swallowed and invade the respiratory tract</p> <p>Severe toxicity to aquatic organisms</p>
Other hazard and toxicity information :	-
Precautionary statement :	<p>[Preventive measures]</p> <p>No eating, drinking or smoking while handling</p> <p>Read and understand the safety precautions fully before handling.</p> <p>Handle in outdoor areas or in well ventilated areas only.</p> <p>Avoid discharging to the environment.</p> <p>Wash hands well after the handling.</p> <p>Avoid inhaling gas/mist/vapor/spray</p> <p>Use protective eyeglasses/mask/gloves. If necessary, use suitable personal protective equipment</p> <p>[Response]</p> <p>If swallowed : If feeling unwell, seek medical advice Rinse the mouth well.</p> <p>If in eyes : Rinse with water carefully for several minutes Then if contact lenses are inserted, take them out if possible and continue to rinse. If the irritation persists, seek medical advice.</p> <p>If inhaled : Move to get a fresh air, take a comfortable posture to ease breathing and rest.</p> <p>If on skin : Rinse with plenty of water and soap. Seek medical advice.</p> <p>If exposed or possible exposure : Seek medical advice. Take off all the contaminated clothing and wash them if reusing them Collect the leaked material promptly.</p> <p>[Storage]</p> <p>Keep in a locked safety cabinet</p> <p>Protect from light, in a clean place at the temperature of about -20 °C</p> <p>[Disposal]</p> <p>This material or its container should be incinerated in an appropriate incinerator, or outsourced to a professional industrial waste disposal contractor licensed by the prefectural governor.</p>

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

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### 3. Composition/Information on Ingredients

Single or compound : Single product  
product  
Chemical name : Ethylbenzene  
Other name : -  
Content : 99.91 %  
Chemical formula or :  $C_2H_5C_6H_5$   
structural formula  
Molecular weight : 106.17  
Reference Number in : Act on the Evaluation of Chemical Substances and Regulation  
Gazetted List in Japan of Their Manufacture, etc. : (3) - 28  
Industrial Safety and Health Act : Published  
CAS No. : 100-41-4

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### 4. First-aid Measures

If in eyes : Rinse with plenty of clean water. Seek medical advice  
If on skin : Rinse with plenty of clean water. Take off the contaminated clothing and shoes, etc. Seek medical advice  
If inhaled : Move to get a fresh air, rest, keep warm. Seek medical advice  
If swallowed : Wash the mouth well with water. Drink a large amount of water to induce vomiting. Seek medical advice.  
Measures to be : Use personal protective equipment.  
taken to protect the person applying first aid  
Anticipated acute and delayed symptoms : -  
Most important characteristics and symptoms : -  
Measures to be taken to protect the person applying first aid : -

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### 5. Fire-fighting Measures

Extinguishing media : Powder, carbon dioxide, alcohol resistance foam, water (spray)  
Specific hazards at the : Possibly forms irritating or toxic hydrogen bromide, bromine, time of fire bromine oxide, etc. at the time of fire.  
Specific extinguishing : Remove any ignition source from the seat of fire and extinguish measures 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 : Extinguishing activities on windward side, avoid inhaling toxic personnel gases. Use protective equipment such as air-breathing apparatus, etc.

## 6. Accidental Release Measures

- Personal precautions : Promptly remove any source of ignition from around the substance. Ready for a fire by keeping an appropriate extinguisher at hand.
- Protective equipment and emergency procedure : If released indoor, ventilate well until the treatment is completed.  
Use suitable protective equipment to protect the skin from the airborne droplets and avoid inhaling dust and gas.
- Environmental precaution : 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 : Adsorb the spilled liquid to waste cloth or to sand and soil and wipe off completely. Collect everything used to clean up the spillage in an empty airtight container.
- 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

- Technological counter measures : Avoid contact with high temperature matters, sparks, strong oxidizers. Any source of ignition prohibited.
- Local ventilation/general ventilation : Use local exhaust ventilation system when handling indoor.
- Precautions for safe handling : Do not treat the container roughly, no dropping, knocking down or dragging.  
Prevent leakage, spillage or overflow that causes the fume to form.  
Keep the container tightly closed after using.  
Wash hands and face, etc. well and gargle after handling  
Eating, drinking or smoking only at the designated areas.  
Entering the handling area only by the authorized persons only.  
Use suitable protective equipment to prevent inhaling, coming in contact with eyes, skin and the clothing.

### Storage

- Appropriate condition : Use explosion proof structured electrical equipment in the storage facility. Ground all the equipment.  
Store in a dark clean place at the temperature of about  $-20\text{ }^{\circ}\text{C}$   
Keep away from strong oxidizers and source of ignition.
- Safe packing material : Glass

## 8. Exposure Controls/Personal Protection

Administrative levels

Not established

Occupational exposure levels

- ACGIH TLV-TWA : 100 ppm STEL 125 ppm
- Japan Society for Occupational : 50 ppm (217 mg/m<sup>3</sup>)

Health

Recommended Reference Value

- OSHA PEL TWA : air TWA 100 ppm (skin)

Facility engineering

Ventilation, exhaust : Local exhaust ventilation system or general ventilation system  
Install safety shower, hand/eye washer, and indicate their location conspicuously.

Safety management, gas detection : -

Storage precaution : -

Protective equipment

Respiratory organ : Chemical cartridge respirator for organic gas, breathing apparatus

Hand : Protective gloves

Eyes : Safety goggles

Skin and body : Protective clothing

## 9. Physical and Chemical Properties

- Appearance, etc. : Liquid
- Color : Clear and colorless
- Odor : Aromatic odor
- pH : No data
- Melting point : -95 °C
- Boiling point : 136.2 °C
- Flashing point : 24 °C
- Explosive range : 1.0 % (v/v) to 7.8 % (v/v)
- Vapor pressure : 0.9 kPa (20 °C)
- Relative vapor density(Air=1) : 3.66
- Specific gravity or bulk specific gravity : 0.866 (20/20 °C)
- Solubility : Water-insoluble (0.015 g/100mL water 20 °C), miscible in ethanol and ether
- n*-Octanol/water partition coefficient (Log Po/w) : 3.15
- Auto-ignition temperature : 432 °C

## 10. Stability and Reactivity

◇Stability

- Stable under normal condition

◇Reactivity

- No data available
- ◇Conditions to avoid
  - Sunlight, heat, open flames, high temperature, spark, static electricity, other source of ignition.
- ◇Hazardous decomposition products
  - Carbon monoxide

## 11. Toxicological Information

Acute toxicity	Oral rats Inhalation rats Inhalation rats Abdominal cavity mice	LD50: 3500 mg/kg (RTECS) LCLo: 4000 ppm/4H (RTECS) LCLo: 50 mg/m <sup>3</sup> /2H (RTECS) LCLo: 2624 µL/kg (RTECS)
Skin corrosivity/irritation	Skin irritation rabbits	15 mg/24H mild (RTECS)
Severe damage to eyes/ eye irritation	Eye irritation rabbits	500 mg severe (RTECS)
Carcinogenicity	Classified as 2B in IARC (2000), A3 in ACGIH (2001).	
Reproductive toxicity	Based on the teratogenicity tests on mice and rats, adverse effect on embryos (malformation in urinary tract) has been observed at dose levels not toxic to mother animals (CERI Hazard Data 96-41 (1998), SIDS (2005), Hazard Assessment Report by Ministry of the Environment, Volume 1 (2002))	
Particular target organ/ systemic toxicity (Single exposure)	Administration of the material within the dose range of Class 2 guidance level to the experiment animals shown adverse effects on central nervous system. Also irritation of respiratory tract observed (CERI Hazard Data 96—41 (1998))	
Particular target organ/ systemic toxicity (Repeated exposure)	Possibility of chemical pneumonia due to aspiration (ICSC (J) (1995))	

## 12. Ecological Information

Degradability, concentration	•No data available
Bioaccumulation	•No data available
Ecotoxicity	•Crustacean (Brown shrimp): 96 hr LC50=0.4 mg/L (CERI•NITE Hazard Assessment Report 2006 (provisional edition))

## 13. Disposal Considerations

- Spray into a fire chamber with fuels such as excess flammable solvent or heavy oil, etc. and incinerate at the highest temperature possible.

## 14. Transport Information

UN number : 1175  
 UN classification : Class 3  
 Material name : Ethylbenzene  
 Container : PG II  
 grade  
 ICAO/IATA : Class 3 Grade II  
 Marine : Applicable  
 pollutant  
 Precautions : Transfer with caution by avoiding direct sunlight and fire source at the temperature about -20 °C. Protect from leakage or spill due to fall or drop.

## 15. Regulatory Information

### ◇ Fire Service Act

- Hazardous material Category 4 No 2 Petroleum (water insoluble) Hazard class 3

### ◇ Industrial Safety and Health Act

- Article 57-2 (Enforcement Order: Article 18) Hazardous substance whose name, etc. must be labeled.
- Article 57-2 (Enforcement Order: Article 18-2) Hazardous substance whose name, etc. must be notified No. 70

### ◇ Ship Safety Act

- Ignitable liquid

### ◇ Law Relating to the Prevention of Marine Pollution and Maritime Disaster

- Enforcement Order Appended Table No. 1 Toxic liquid substance Category Y substance

### ◇ Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof

- Class 1 Designated chemical substance No.53

- ◎ **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.

