

# Safety Data Sheet



## 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 (NMIJ)  
 Person in Charge : Person in Charge of Certified Reference Materials  
 Telephone No. : +81-29-861-4059 Fax No. : +81-29-861-4009  
 Emergency Contact : Same as above

Prepared on : May 16, 2006  
 Revised on : August 31, 2022  
 ID Number : 4013001

Identity of Substance/Mixture : Certified Reference Material NMIJ CRM 4013-a  
*p*-Xylene  
 Recommended Use of the Chemical and Restriction on Use : This CRM is primarily intended for use in calibrating analytical instruments. It is also intended for 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

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

GHS label element:



Signal word:	Danger
Hazard and toxicity:	<p>Ignitable liquid and vapor</p> <p>Skin irritant</p> <p>Strong eye irritant</p> <p>May be toxic if swallowed.</p> <p>May have adverse effects to reproductive function or embryo.</p> <p>Damages to organs (central nervous system).</p> <p>May irritate respiratory organ.</p> <p>May be lethal if swallowed and spread into respiratory tract.</p> <p>Harmful to aquatic organisms.</p> <p>Long-term impact harmful to aquatic organisms.</p>
Other hazard and toxicity information :	Inhaling the vapor may cause serious poisoning.
Precautionary statement :	<p>[Preventive measures]</p> <p>Before handling, read and understand the safety precautions fully</p> <p>Handling activities in outdoor area or in well ventilated area 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 personal protective equipment.</p> <p>[Response]</p> <p>If swallowed : If feeling ill, get medical assistance.</p> <p style="padding-left: 40px;">Rinse out the mouth well and drink a large amount of water.</p> <p style="padding-left: 40px;">Do not induce vomiting.</p> <p>If in eyes : Rinse carefully with plenty of water for several minutes. Get medical assistance.</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 away with soap and a large amount of water.</p> <p style="padding-left: 40px;">Get medical assistance.</p> <p>If exposed or possibility of the exposure : Get medical assistance.</p> <p>Take off all the contaminated clothes and wash them if reusing the clothes.</p> <p>Recover and collect the leaked material</p> <p>[Storage]</p> <p>Store in a locked area.</p> <p>Protect from light, store in a clean place at the temperature of about -20 °C.</p> <p>[Disposal]</p> <p>Incinerate the content and container in an appropriate incinerator,</p>

or outsource to a professional industrial waste disposal contractor licensed by the prefectural governor.

Hazards not mentioned above are either not classifiable or not applicable.

### 3. Composition/Information on Ingredients

Single or compound product	:	Single product
Chemical name	:	<i>p</i> -Xylene
Other name	:	1,4-Dimethylbenzene, <i>p</i> -Xylol
Content	:	99.9 %
Chemical formula or structural formula	:	C <sub>6</sub> H <sub>4</sub> (CH <sub>3</sub> ) <sub>2</sub>
Molecular weight	:	106.16
Reference Number in Gazetted List in Japan	:	Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. : (3)-3 Industrial Safety and Health Act : Published
CAS No.	:	106-42-3
Hazardous component	:	<i>p</i> -Xylene (Deleterious substance ≒ 15 ml)

### 4. First-aid Measures

If in eyes	:	Rinse well with clean water. Get medical assistance
If on skin	:	Rinse well with clean water. Take off the contaminated clothes and shoes etc. Get medical assistance
If inhaled	:	Move to get a fresh air, rest, keep warm. Get medical assistance
If swallowed	:	Rinse out the mouth well with water. Do not induce vomiting. Get medical assistance
Anticipated acute and delayed symptoms	:	Drowsiness, dizziness, nausea
Most important characteristics and symptoms	:	-
Measures to be taken to protect the person applying first aid	:	Use personal protective equipment.

### 5. Fire-fighting Measures

Extinguishing media	:	Powder, foam, carbon dioxide, water (spray). Absolutely no use of straight stream firefighting nozzle.
Specific hazards at the time of fire	:	Use appropriate protective equipment to avoid inhaling smoke while carrying out extinguishing action.
Specific extinguishing measures	:	Remove fire sources and extinguish using appropriate agent compatible with the substance. 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, and avoid inhaling toxic gases. Use protective equipment such as air-breathing apparatus, etc.

## 6. Accidental Release Measures

- Personal precautions : Promptly remove any fire source 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 appropriate 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 sewer, rivers, etc. directly. Treat the contaminated waste water appropriately before discharging to the environment.
- Recovery, neutralization : Open flames or other sources of ignition prohibited. Adsorb the spilled liquid to waste cloth or to sand and soil and wipe off the remains completely. Recover and collect everything used to clean up the spillage in an airtight container.
- Measures to prevent secondary accident : Rope-off the leaked area and restrict access to the area to the authorized personnel only. Evacuate the people on the leeward and work on the windward side

## 7. Handling and Storage

### Handling

- Technological counter measures : The floor should be of the material such as concrete, etc. that prevents the material from seeping underground.  
Open flame or other sources of ignition prohibited. Avoid contact with high temperature matter, sparks, strong oxidants, etc.
- Local ventilation/general ventilation : Use appropriate protective equipment  
Use local exhaust ventilation system when handling indoor.
- Precautions for safe handling : Do not handle the container roughly, no dropping, knocking down nor dragging  
Prevent leakage, spillage or overflow that causes fume to form.  
Wash hands and face, etc. well and gargle after the handling  
Eating, drinking or smoking only at the designated areas.  
Entering the handling area only by the authorized persons.  
Use appropriate 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 room. Earth (ground) all the equipment.  
Store in a dark clean place at the temperature of about -20 °C  
Do not store near strong oxidizers and fire sources.

Material for safe packing : Glass  
Store in a locked area.

## 8. Exposure Controls/Personal Protection

### Administrative levels

Working Environment Evaluation Standards : 50 ppm

### Occupational exposure limit

•ACGIH TLV-TWA : 100 ppm STEL 150 ppm

•Japan Society for Occupational Health : 50 ppm (217 mg/m<sup>3</sup>)

Recommended Reference Value

•OSHA PEL TWA : 100 ppm STEL 150 ppm

### Facility engineering

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

Safety management, gas detection : Detector

Storage precaution : -

### Protective equipment

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

Hand : Protective gloves

Eyes : Protective eyeglasses

Skin and body : Protective clothing

Sanitary measures : Replace masks, etc. used to adsorb the substances, etc. periodically or every time of use. Check them closely because the substance affects rubber, etc. adversely.

## 9. Physical and Chemical Properties

- Appearance, etc. : Liquid
- Color : Clear and colorless
- Odor : Peculiar odor
- pH : No data
- Melting point : No data
- Boiling point : 138 °C
- Flashing point : 27 °C (Sealed system)
- Explosive range : 1.1 vol % to 9 vol % (In air)
- Vapor pressure : 8.7 hPa (20 °C)
- Relative vapor density(Air=1) : No data
- Specific gravity or bulk : 0.861 (20/4 °C)

- specific gravity
- Solubility : Water-insoluble (0.02 g/100mL 25 °C), miscible in ethanol and ether
- *n*-Octanol/water partition coefficient (Log Po/w) : 3.15
- Auto-ignition temperature : 525 °C to 530 °C

## 10. Stability and Reactivity

### ◇Stability

- Stable under normal condition

### ◇Reactivity

- Potential ignition in contact with strong oxidizers

### ◇Conditions to avoid

- Sunlight, heat, open flames, high temperature, spark, static electricity, other sources of ignition.

### ◇Hazardous decomposition products

- Carbon monoxide

## 11. Toxicological Information

Acute toxicity	Inhalation rats LC50: 4550 ppm/4 (RTECS) Abdominal cavity rats LD50: 3810 mg/kg Abdominal cavity mice LD50: 2450 µL/kg (RTECS)
Skin corrosivity/irritation	“Skin irritation observed” as a result of the skin irritancy test performed on rabbits (EHC 190 (1997)).
Severe damage to eyes/ eye irritation	Xylene mixture (Cas1330-20-7) causes moderate irritation to eyes.
Reproductive toxicity	In the teratogenic tests on mice, increase in the incidence of cleft palate in embryo/fetus observed at the dosage that does not indicate toxicity to dams (CERI•NITE Hazard Assessment Report No.62 (2004).
Particular target organ/ systemic toxicity (Single exposure)	In humans, “dizziness” (CERI•NIT Hazard Assessment Report No.62 (2004))etc.; in experimental animals, “ significant wakefulness, tremor, anesthetic action”, etc. (EHC 190 (1997))
Aspiration hazard	Aspiration may cause chemical pneumonia (ICSC (J) (2002)).

## 12. Ecological Information

### Degradability, concentration

- No data available

### Bioaccumulation

- No data available

### Ecotoxicity

- Crustacean(Brown shrimp)LC50:1.7 mg/L/96hr (CERI•NITE Hazard Assessment Report, 2005)

### 13. Disposal consideration

- Incinerate in an incinerator equipped with after burner and scrubber

### 14. Transport Consideration

UN Number	: 1307
UN Classification	: Class 3 (Ignitable liquid)
Material name	: Xylene
Container grade	: PG III
ICAO/IATA	: Class 3 Grade III
Marine pollutant	: Applicable
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

#### Poisonous and Deleterious Substances Control Act

- Deleterious substance Packing Group 3

#### Industrial Safety and Health Act (Law)

- Article 57 (Enforcement Order: Article 18) Hazardous substance whose name, etc. must be labeled.
- Article 57-2 of the Law (Article 18-2 of the Order), Toxic substances of which the names etc. are subject to the notification No. 136.
- Ordinance on the Prevention of Organic Solvent: Class 2 Organic solvent

#### 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

#### Offensive Odor Control Act

- Enforcement Order, Article 1 (Specified offensive odor 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.80

◇ 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.

---