

Safety Data Sheet



1. Identification of the Substance/Mixture and the Supplier

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Identity of Substance/Mixture : Certified Reference Material NMIJ CRM 4011-a
o-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 2
 Particular target organ/ systemic toxicity (Single exposure) : Class 3 (Anesthetic action)
 Aspiration respiratory hazard : Class 1
 Water environment toxicity(Acute) : Class 1
 Water environment toxicity(Chronic) : Class 1

GHS label element:



Signal word: Danger

Hazard and toxicity :	<p>Ignitable liquid and vapor</p> <p>Skin irritant</p> <p>Severe eye irritant</p> <p>Potential toxicity if swallowed</p> <p>May have adverse effects to reproductive function or embryo</p> <p>Drowsiness or dizziness</p> <p>May be lethal if swallowed and spread into respiratory tract</p> <p>Severe toxicity to aquatic organisms</p> <p>Long-term impact severely toxic to aquatic organisms</p>
Other hazard and toxicity information :	Inhaling the vapor may cause serious poisoning
Precautionary statement :	<p>[Preventive measures]</p> <p>No handling before reading and understanding the safety precautions fully.</p> <p>Handling activities in an 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 Rinse out the mouth well and drink a large amount of water. 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. Get medical assistance.</p> <p>If exposed or possible exposure : Get medical assistance. Take off all the contaminated clothes and wash them if reusing them</p> <p>Collect the leaked substance.</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, or outsource to a professional industrial waste disposal contractor licensed by the prefectural governor.</p>
	Hazards not mentioned above are either not classifiable or not applicable.

3. Composition/Information on Ingredients

Substance or mixture	: Single product
Chemical name	: <i>o</i> -Xylene
Other name	: 1,2-dimethylbenzene, <i>o</i> -Xylol
Content	: 99.93 %
Chemical formula or structural formula	: $C_6H_4(CH_3)_2$
Molecular weight	: 106.17
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.	: 95-47-6
Hazardous component	: <i>o</i> -Xylene (Deleterious substance \cong 15 mL)

4. First-aid Measures

If in eyes	: Rinse well with plenty of 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 involving in emergency 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 during 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, 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, 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 discharged to the environment. |
| Recovery,
neutralization | : | Open flame or other sources of ignition prohibited. Adsorb the spilled liquid to waste cloth or to sand and soil and wiped off 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 materials such as concrete, etc. that can prevent from seeping underground
Open flame or other source 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 or 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 should be only at the designated areas.
Entering the handling area by the authorized persons only.
Use appropriate protective equipment to prevent inhaling, coming in contact with eyes, skin and clothing. |

Storage

- | | | |
|--------------------------|---|--|
| Appropriate
condition | : | Use earthed explosion-proof structured electrical equipment in the storage room.
Store in a dark clean place at the temperature of about $-20\text{ }^{\circ}\text{C}$.
Do not store near strong oxidizers and fire sources.
Store in a locked area. |
| Material for safe | : | Glass |

packing

8. Exposure Control/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 Recommended Reference Value : 50 ppm (217 mg/m³)

Occupational Health

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 the masks, etc. used to adsorb the substances, etc. periodically or every time of use. Check them closely for the damage 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 : 144 °C
- Flashing point : 32 °C (Sealed system)
- Explosive range : 1.0 vol % to 6 vol % (In air)
- Vapor pressure : 6.5 hPa (20 °C)
- Relative vapor density (Air=1) : 3.7
- Specific gravity or bulk specific gravity : 0.88 (20 °C)
- Solubility : Water-insoluble (0.02 g/100 mL 25 °C), miscible in

- ethanol and ether
- *n*-Octanol/water partition coefficient (Log Po/w) : 2.8
- Auto-ignition temperature : 460 °C to 465 °C

10. Stability and Reactivity

- ◇Stability
 - Stable under normal condition
- ◇Reactivity
 - Possible 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 humans Abdominal cavity mice Oral rats	LCLo: 6125 ppm/12Hmg/kg (RTECS) LD50: 1364 mg/kg (RTECS) LD50: 3608 mg/kg(EHC 190 (1997))
Skin corrosivity/irritation	Skin irritation rabbits	500 mg/24h moderate
Severe damage to eyes/ eye irritation	Eye irritation rabbits	5 mg/24h severe (Xylene)
Germ-cell mutagenicity	In the mouse teratogenicity tests, an increase in the incidence of cleft palate observed in the embryo at dosing levels toxic to mother animals (no description of mother animal toxicity).(CERI Hazard Data 96—30(1) (1997), CERI•NITE Hazard Assessment Report No.62 (2004))	
Reproductive toxicity	Dose related toxicity in mother animals observed in the embryos. (NTP (1986) and ATSDR (2005))	
Particular target organ/ systemic toxicity (Single exposure)	As for the experimental animals, low blood pressure, drowsiness; central nerve system agitation at low concentration and central nervous system suppression at high concentration, etc. observed (EHC 190 (1997))	
Aspiration Hazard	Potential chemical pneumonia due to aspiration (ICSC (J) (2002))	

12. Ecological Information

- Degradability, concentration
 - No data available
- Bioaccumulation
 - No data available
- Ecotoxicity

- Algae (*Selenastrum capricornutum*) ErC50:0.8 mg/L/72h (Eco-toxicity tests of chemicals conducted by Ministry of the Environment, 1996).

13. Disposal Considerations

- Incinerate in an incinerator equipped with after burner and scrubber

14. Transport Information

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 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 Poisoning, 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.
