

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 4039-a
 1,4-Dichlorobenzene
 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:

Acute toxicity (Oral)	: Class 5
Skin corrosivity/irritant	: Class 3
Severe eye damages/eye irritant	: Class 2B
Skin sensitization	: Class 1
Germ-cell mutagenicity	: Category 2
Carcinogenicity	: Class 2
Reproductive toxicity	: Class 1B
Particular target organ/systemic toxicity (Single exposure)	: Class 1 (Blood, liver)
Particular target organ/systemic toxicity (Repeated exposure)	: Class 1 (Respiratory organ, liver, nervous system) Class 2 (Kidney)
Water environment toxicity (Acute)	: Class 1

GHS label element:



Signal word:

Danger

Hazard and toxicity:

May be harmful if swallowed (oral)
Minor skin irritation
Eye irritation
May cause allergic dermatitis
May cause genetic disorder
May cause cancer
May have adverse effects on reproductive function and fetus
Damages to blood system, liver
Long-term or repeated exposure cause damages to respiratory organ, liver
and nervous system
Long-term or repeated exposure may cause damages to kidney
Severe toxicity to aquatic organisms

Precautionary statement

: [Safety measures]
No eating, drinking or smoking when handling
Read and understand the safety precautions fully before handling.
Avoid discharging to the environment.
Wash hands well after handling.
If necessary, use suitable personal protective equipment
Avoid inhaling gas/mist/vapor/spray
Use protective gloves
[Response]
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
If feeling unwell: Seek medical advice
If on skin : Rinse with plenty of water and soap. Seek medical advice
If skin irritation or rash develops, seek medical advice
If exposed or possible exposure : Seek medical advice
Do not take out the contaminated clothing outside the work area.
Wash the contaminated clothing if reusing it.
Collect the spilled material.
[Storage]
Store in a dark place at the temperature of about 5 °C
Lock in a safety cabinet.
[Disposal]
Disposal of this material or its container 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

Substance or mixture	: Single product
Chemical name	: 1,4-Dichlorobenzene
Other name	: <i>p</i> -Dichlorobenzene
Content	: 99.99 %
Chemical or structural formula	: C ₆ H ₄ Cl ₂
Molecular weight	: 147.00
Reference Number in Gazetted List in Japan	: Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. : (3) - 41 Industrial Safety and Health Act : Published
CAS No.	: 106-46-7
Hazardous component	: 1,4- Dichlorobenzene

4. First-aid Measures

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. Seek medical advice
If on skin	: Promptly rinse with plenty of water and soap. Seek medical advice.
If inhaled	: Wash the contaminated clothing if reusing it Move to get a fresh air, take a comfortable posture to ease breathing and rest. Seek medical advice.
If swallowed	: Wash the mouth. Seek medical advice
Anticipated acute symptoms and delayed symptoms	: Inhalation: Headache, suffocation, nausea, runny nose, swelling eyes Skin: Irritation, burning sensation Eyes: Irritation, pain Oral ingestion: Burning sensation, diarrhea, nausea, vomiting
Most important characteristics and symptoms	: -
Measures to be taken to protect the person applying first aid	: Use suitable protective equipment according to the situation.

5. Fire-fighting Measures

Extinguishing media	: Water, powder, foam, carbon dioxide, dry sand
Specific hazards at the time of fire	: Use suitable protective equipment to avoid inhaling irritating or toxic fume (or gas) formed due to the molecule containing halogen at the time of fire.

- Specific extinguishing measures : Remove any ignition source 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 air-breathing apparatus, etc.

6. Accidental Release Measures

- Personal precautions : If released indoor, ventilate well until the treatment is completed.
- Protective equipment and emergency procedure : Rope-off the leaked area and restrict access only to the authorized persons. Use suitable protective equipment to protect the skin from airborne droplets and avoid inhaling dust and gas. Evacuate the people on the leeward and work on the windward side.
- 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. Wash away the spilled area with a large amount of water.
- Measures to prevent secondary accident : Keep away all the ignition sources from the area (smoking, fire work, open flame prohibited). Prevent the released material to flow into the drain ditch, drain sewer, basement or closed area.

7. Handling and Storage

Handling

- Technological counter measures : Fire sources prohibited
Avoid high temperature matters, sparks, avoid contact with strong oxidizers., strong reducing agents, etc.
- Precautions for safe handling : Obtain the handling manual before handling. Do not handle the material before understanding the safety precautions fully. Use ventilation system to maintain the concentration in the air below exposure limit. Avoid inhaling dust and fume. Do not touch, inhale or swallow the material. Do not take out the contaminated clothing from the work area. Wash hands well after handling. Avoid discharging into the environment.

Storage

- Technological counter measures : As for the storage or handling area, take necessary measures for lighting, illumination and ventilation.
- Incompatible chemicals : Store separately from and keep away from strong reducing agents, strong oxidizers and oxidizers.
- Appropriate condition : Keep away from incompatible chemicals. Lock in a safety cabinet in an airtight container in a well ventilated place at the temperature of about 5 °C.

Safe packing material : Glass

8. Exposure Controls/Personal Protection

Administrative level

Not established

Occupational exposure level (Material name) 1,4-Dichlorobenzene

•ACGIH (2009) : TLV-TWA 10 ppm

•Japan Society for : 10 ppm 60 mg/m³

Occupational Health

Recommended

Reference Value(2009)

Facility engineering

Ventilation, exhaust : Local ventilation system if dust forms. If forming dust and fume due to high-heat processing, install ventilation system to maintain the level of air contamination below permissible concentration.

Storage precaution : Ventilate along the floor surface. Keep the container airtight. Keep away from flammable substances, reducing agents and strong oxidizers. Install eye washer and safety shower at the work area.

Protective equipment

Respiratory organ : Particulate respirator

Hand : Impermeable protective gloves

Eyes : Protective goggles

Skin and body : Protective work clothing (long sleeved), protective boots, etc.

Sanitary measures

Do not take out contaminated clothing from the work area. Wash hands well after handling.

Change the adsorbent for the mask, etc. periodically or every time of use.

9. Physical and Chemical Properties

- Appearance, etc. : Solid at normal temperature
- Color : White
- Odor : Peculiar odor
- pH : No data
- Melting point : 53 °C
- Boiling point : 174 °C
- Flashing point : 66 °C (Closed system)
- Explosive range : Lower limit 6.2 vol%, Upper limit 16 vol%
- Vapor pressure : 170 Pa (20 °C)
- Relative vapor density(Air=1) : 5.08
- Specific gravity or bulk specific gravity : 1.01 (20 °C)

- Solubility : 80 mg/L (25 °C)
- *n*-Octanol/water partition coefficient (Log Po/w) : 3.37
- Auto-ignition temperature : No data
- Flammability : Flammable

10. Stability and Reactivity

- ◇ Stability
 - Stable under normal condition
- ◇ Reactivity
 - Reacts with strong oxidizers
- ◇ Conditions to avoid
 - Sunlight, heat, in contact with oxidizers and other hazardous incompatible chemicals
- ◇ Hazardous decomposition products
 - Forms carbon monoxide, carbon dioxide, hydrogen chloride, phosgene, etc. when combusted.

11. Toxicological Information

Acute toxicity	<p>Oral — rats LD50:500 mg/kg</p> <p>Subcutaneous — mice LD50:5145 mg/kg</p> <p>Based on the lower rate of 2512 mg/kg between the results obtained from the oral administration tests on rats : LD50 2512 mg/kg (NICNAS (2000)) and 2515 mg/kg(DFGOT vol.4 (1992))</p>
Skin corrosivity/irritation	<p>Skin irritation test on rabbits: '4-hour application test performed on rabbits according to OECD Test Guideline observed mild irritation' (CERI•NITE Hazard Assessment Report No. 76 (2005))</p>
Severe damage to eyes/ eye irritation	<p>Eye irritation — humans 80 ppm</p> <p>Eye irritation tests on rabbits: 'Tests performed according to OECD Test Guideline reported redness of conjunctiva and conjunctival edema (1/3 examples), but recovered after 72 hours, no effect on iris or cornea but mild irritation (CERI•NITE Hazard Assessment Report No. 76 (2005))</p>
Respiratory sensitization or skin sensitization	<p>Skin sensitization tests on guinea pigs : 'results of Maximization tests shown sensitization effect at the rates of : Rate 1; 9/24 guinea pigs, Rate 2; 4/24 guinea pigs, Rate 3; 1/24 guinea pigs' (CERI•NITE Hazard Assessment Report No.76 (2005))</p>
Germ cell mutagenicity	<p>Germ cell mutagenicity test in micro-organisms:: Genus aspergillus 200 mg/L</p> <p>Sperm morphology test : Abdominal cavity — Rats 800 mg/kg</p> <p>Heritable mutagenicity test (dominant lethal test) negative, no in vivo germ cell mutagenicity test, in vivo somatic cell mutagenicity test (micronucleus test) positive, no in vivo germ cell genotoxicity test (EU-RAR No.48 (2004), IARC 73 (1999))</p>
Carcinogenicity	<p>Industrial Safety and Health Act, Article 28, Para.3, 'Chemical</p>

	Substances Specified by Minister of Health, Labour and Welfare' Classified as A3 by ACGIH (2005), as R by NTP (2005), as 3 by EU (2004) and as 2B by IARC (1999)
	NTP :Substance rationally concerned as human carcinogen
	IARC :Group 2B Possibly carcinogenic to humans
	ACGIH :A3Animal carcinogen
	Japan Society for Occupational Health :Group 2, B Considered as possibly carcinogenic to humans (not enough evidence established)
Reproductive toxicity	Oral administration for two-generation reproductive toxicity test at a dose that indicates no toxicity to parent animal observed decrease in the number of living child, reduction in birth weight, (EU-RAR No.48 (2004), CERI·NITE Hazard Assessment Report No.76 (2005))
Particular target organ/ systemic toxicity (Single exposure)	As for humans, 'Hyperchromasia-decrease of hemoglobin, microcytic anemia, methemoglobinuria observed'(CERI Hazard Data 96-47 (1998)), 'jaundice, hemolytic anemia, methemoglobinuria' (CERI·NITE Hazard Assessment Report No.76 (2005))
Particular target organ/ systemic toxicity (Repeated exposure)	As for humans: 'Granulomas-in-the-lungs, liver atrophy and hepatic cirrhosis; neurological symptoms such as dynamic ataxia, speech disorder, finger trembling, enhanced muscular reflex' (CERI Hazard Data 96-47 (1998)) As for the experimental animals: 'Interstitial pulmonary edema, hyperemia, pulmonary alveolar hemorrhage, cloudy swelling of liver, focal necrosis, hepatic cirrhosis, kidney weight gain, hyaline droplet at tubular epithelium' (CERI Hazard Data 96-47 (1998))

12. Ecological Information

Degradability, concentration

- Degradability :Crustacean (Daphnia magna): 48H EC50=0.7 mg/L (CERI·NITE Hazard
Assessment Report, 2005)

Bioaccumulation

- No data available

Ecotoxicity

- Considered as easily degradable

13. Disposal Considerations

Residue waste : Combustion method
Spray together with flammable solvent into a fire chamber equipped
with after burner and scrubber and incinerate at the highest
temperature possible.
Treat the drainage water containing this material with activated
sludge, etc. before discharging.
Disposal should be in compliance with the relevant laws and

regulations, and the ordinances of local government
If the above treatment procedure is not possible, outsource to a professional waste disposal contractor licensed by the prefectural governor.

Contaminated container and package : Dispose of the empty container after removing the content completely.

14. Transport Information

UN number : 3077
 UN classification : Class 9 (Environmental toxin)
 Material name : Environmental toxin (Solid)
 Container grade : PG III Refer to IATA Book
 Marine pollutant : Applicable
 Precautions : Make sure that the container does not leak. Do not damage the package by falling or dropping when loading.. Prevent the package from falling apart.

15. Regulatory Information

- ◇Fire Service Act
Not applicable
- ◇Poisonous and Deleterious Substances Control Act
Not applicable
- ◇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.441
 - Article 28 Para. 3 ‘Chemical substances specified by Minister of Health, Labor and Welfare’
Work Environment Measurement Standards, Work Environment Evaluation Standards
- ◇Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. (Chemical Substances Control Law)
Priority Assessment Chemical Substances (Pre-manufacturing evaluation of new chemical substances)
- ◇Civil Aeronautic Act
Other harmful substance
- ◇Law Relating to the Prevention of Marine Pollution and Maritime Disaster
Enforcement Order Appended Table No. 1 Toxic liquid substance Category X substance
- ◇Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof (PRTR Law)
Class 1 Designated Chemical Substances No.181

- ◎ **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.
