# SAFETY DATA SHEET

According to JIS Z 7253:2019
**Revision date** 09-May-2023
Revision Number 4.04

## Section 1: PRODUCT AND COMPANY IDENTIFICATION

| | |
|---|---|
| **Product Name** | Dicyclopentadiene |
| **Product Code** | 040-01702,044-01705 |

**Manufacturer** FUJIFILM Wako Pure Chemical Corporation
1-2 Doshomachi 3-Chome
Chuo-ku, Osaka 540-8605, Japan
Phone: +81-6-6203-3741
Fax: +81-6-6203-5964

**Supplier** FUJIFILM Wako Pure Chemical Corporation
1-2 Doshomachi 3-Chome, Chuo-ku, Osaka 540-8605, Japan
Phone: +81-6-6203-3741
Fax: +81-6-6203-2029

**Emergency telephone number** +81-6-6203-3741 / +81-3-3270-8571

**Recommended uses** For research use only

**Restrictions on use** Seek expert judgment when using for purposes other than those recommended.

## Section 2: HAZARDS IDENTIFICATION

**GHS classification**

**Classification of the substance or mixture**

| | |
|---|---|
| **Flammable liquids** | Category 3 |
| **Acute toxicity - Oral** | Category 4 |
| **Acute toxicity - Inhalation (Vapors)** | Category 2 |
| **Skin corrosion/irritation** | Category 2 |
| **Serious eye damage/eye irritation** | Category 2B |
| **Reproductive Toxicity** | Category 2 |
| **Specific target organ toxicity (single exposure)** | Category 1, Category 3 |
| **Category 1** central nervous system, respiratory system | |
| **Category 3** Narcotic effects | |
| **Specific target organ toxicity (repeated exposure)** | Category 2 |
| **Category 2** respiratory system, liver | |
| **Acute aquatic toxicity** | Category 2 |
| **Chronic aquatic toxicity** | Category 2 |

**Pictograms**

**Signal word** Danger

**Hazard statements**

H226 - Flammable liquid and vapour
H315 - Causes skin irritation
H320 - Causes eye irritation
H302 - Harmful if swallowed
H330 - Fatal if inhaled
H361 - Suspected of damaging fertility or the unborn child

H336 - May cause drowsiness or dizziness
H401 - Toxic to aquatic life
H411 - Toxic to aquatic life with long lasting effects
H370 - Causes damage to the following organs: central nervous system, respiratory system
H373 - May cause damage to the following organs through prolonged or repeated exposure: respiratory system, liver

**Precautionary statements-(Prevention)**

- Obtain special instructions before use
- Do not handle until all safety precautions have been read and understood
- Use personal protective equipment as required
- Wash face, hands and any exposed skin thoroughly after handling
- Do not eat, drink or smoke when using this product
- Do not breathe dust/fume/gas/mist/vapors/spray
- Use only outdoors or in a well-ventilated area
- Avoid release to the environment
- Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
- Keep container tightly closed
- Ground/bond container and receiving equipment
- Use explosion-proof electrical/ ventilating / lighting / equipment
- Use only non-sparking tools
- Take precautionary measures against static discharge
- Keep cool

**Precautionary statements-(Response)**

- IF exposed: Call a POISON CENTER or doctor/physician
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
- If eye irritation persists: Get medical advice/attention
- If skin irritation occurs: Get medical advice/attention
- IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
- Wash contaminated clothing before reuse
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
- Call a POISON CENTER or doctor/physician if you feel unwell
- IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
- Rinse mouth
- In case of fire: Use $CO_2$, dry chemical, or foam for extinction
- Collect spillage

**Precautionary statements-(Storage)**

- Store locked up
- Store in a well-ventilated place. Keep container tightly closed

**Precautionary statements-(Disposal)**

- Dispose of contents/container to an approved waste disposal plant

**Others**

**Other hazards** Not available

## Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

**Single Substance or Mixture** Substance

**Formula** $C_{10}H_{12}$

| Chemical Name | Weight-% | Molecular weight | ENCS | ISHL No. | CAS RN |
|---|---|---|---|---|---|
| Dicyclopentadiene | 90.0 | 132.20 | (4)-634 | * | 77-73-6 |

**Note on ISHL No.:** * in the table means announced chemical substances.

**Impurities and/or Additives:** Stabilizer: 4-t-Butylpyrocatechol abt. 0.005 %

## Section 4: FIRST AID MEASURES

**Inhalation**

Remove to fresh air. If symptoms persist, call a physician.

**Skin contact**
Wash off immediately with soap and plenty of water. If symptoms persist, call a physician.
**Eye contact**
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediate medical attention is required.
**Ingestion**
Rinse mouth. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately. Do not induce vomiting without medical advice.
**Protection of first-aiders**
Use personal protective equipment as required.

## Section 5: FIRE FIGHTING MEASURES

**Suitable extinguishing media**
Water spray (fog), Carbon dioxide ($CO_2$), Foam, Extinguishing powder, Sand
**Unsuitable extinguishing media**
No information available
**Specific hazards arising from the chemical product**
Thermal decomposition can lead to release of irritating and toxic gases and vapors. Vapors may form explosive mixtures with air
**Special extinguishing method**
No information available
**Special protective actions for fire-fighters**
Use personal protective equipment as required. Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.

## Section 6: ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures**
For indoor, provide adequate ventilation process until the end of working. Deny unnecessary entry other than the people involved by, for example, using a rope. While working, wear appropriate protective equipments to avoid adhering it on skin, or inhaling the gas. Work from windward, and retract the people downwind.
**Environmental precautions**
To be careful not discharged to the environment without being properly handled waste water contaminated.
**Methods and materials for contaminent and methods and materials for cleaning up**
Absorb dry sand, earth, sawdust and the waste. Collect empty container that can be sealed.
**Recoverly, neutralization**
No information available
**Secondary disaster prevention measures**
Clean contaminated objects and areas thoroughly observing environmental regulations.

## Section 7: HANDLING AND STORAGE

### Handling
**Technical measures**
Highly flammable. Avoid contact with high temperature objects, spark, and strong oxidizing agents. Use with local exhaust ventilation.
**Precautions**
Do not rough handling containers, such as upsetting, falling, giving a shock, and dragging Prevent leakage, overflow, and scattering. Not to generate steam and dust in vain. Seal the container after use. After handling, wash hands and face, and then gargle In places other than those specified, should not be smoking or eating and drinking Should not be brought contaminated protective equipment and gloves to rest stops Deny unnecessary entry of non-emergency personnel to the handling area
**Safety handling precautions**
Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use personal protective equipment as required. Avoid contact with skin, eyes or clothing.
### Storage

**Safe storage conditions**

| | |
|---|---|
| **Storage conditions** | Keep container protect from light, store in well-ventilated place at room temperature (preferably cool). Keep container tightly closed. |
| **Safe packaging material** | Glass |
| **Incompatible substances** | Strong oxidizing agents |

## Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

**Engineering controls**

In case of indoor workplace, seal the source or use a local exhaust system. Provide the safety shower facility, and hand- and eye-wash facility. And display their position clearly.

**Exposure limits**

| Chemical Name | JSOH (Japan) | ISHL (Japan) | ACGIH |
|---|---|---|---|
| Dicyclopentadiene<br>77-73-6 | N/A | N/A | TWA: 5 ppm |

**Personal protective equipment**

| | |
|---|---|
| **Respiratory protection** | gas mask for organic gas ( JIS T 8152 ) |
| **Hand protection** | chemical protective gloves ( JIS T 8116 ) |
| **Eye protection** | protective eyeglasses or chemical safety goggles |
| **Skin and body protection** | Long-sleeved work clothes |

**General hygiene considerations**

Handle in accordance with good industrial hygiene and safety practice.

## Section 9: PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---|---|
| **Form** | |
| **Color** | White - pale yellow , upon melting Colorless - pale yellow |
| **Turbidity** | clear - nearly clear ( upon melting ) |
| **Appearance** | mass or upon melting liquid |
| **Odor** | unpleasant |
| **Melting point/freezing point** | -7 °C |
| **Boiling point, initial boiling point and boiling range** | 170 °C |
| **Flammability** | Flammable liquid and vapor |
| **Evaporation rate:** | no data available |
| **Flammability (solid, gas):** | no data available |
| **Upper/lower flammability or explosive limits** | |
| **Upper:** | 7vol% |
| **Lower:** | 1vol% |
| **Flash point** | 26 °C |
| **Auto-ignition temperature:** | 503 °C |
| **Decomposition temperature:** | no data available |
| **pH** | no data available |
| **Viscosity (coefficient of viscosity)** | no data available |
| **Dynamic viscosity** | no data available |
| **Solubilities** | Ethanol , acetone : freely soluble . water : practically insoluble,or insoluble . |
| **n-Octanol/water partition coefficient:(log Pow)** | 2.78 |
| **Vapour pressure** | 1.33 kPa (47.6 °C) |
| **Specific Gravity / Relative density** | 0.976 −0.986 g/mL (20℃) |
| **Vapour density** | 4.55 (air = 1) |
| **Particle characteristics** | no data available |

## Section 10: STABILITY AND REACTIVITY

**Stability**

**Reactivity** no data available
**Chemical stability** May be altered by light.

**Hazardous reactions**
None under normal processing

**Conditions to avoid**
Extremes of temperature and direct sunlight, Heat, flames and sparks, static electricity, spark

**Incompatible materials**
Strong oxidizing agents

**Hazardous decomposition products**
Carbon monooxide (CO), Carbon dioxide (CO2)

## Section 11: TOXICOLOGICAL INFORMATION

**Acute toxicity**

| Chemical Name | Oral LD50 | Dermal LD50 | Inhalation LC50 |
|---|---|---|---|
| Dicyclopentadiene | 346.5 mg/kg ( Rat ) | 4380 mg/kg ( Rabbit ) | 348 ppm ( Rat ) 4 h |

| Chemical Name | Acute toxicity -oral- source information | Acute toxicity -dermal- source information | Acute toxicity -inhalation gas- source information |
|---|---|---|---|
| Dicyclopentadiene | Based on the NITE GHS classification results | Based on the NITE GHS classification results | Based on the NITE GHS classification results |

| Chemical Name | Acute toxicity -inhalation vapor- source information | Acute toxicity -inhalation dust- source information | Acute toxicity -inhalation mist- source information |
|---|---|---|---|
| Dicyclopentadiene | Based on the NITE GHS classification results | Based on the NITE GHS classification results. | Based on the NITE GHS classification results. |

**Skin irritation/corrosion**

| Chemical Name | Skin corrosion/irritation source information |
|---|---|
| Dicyclopentadiene | Based on the NITE GHS classification results |

**Serious eye damage/ irritation**

| Chemical Name | Serious eye damage/irritation source information |
|---|---|
| Dicyclopentadiene | Based on the NITE GHS classification results |

**Respiratory or skin sensitization**

| Chemical Name | Respiratory or Skin sensitization source information |
|---|---|
| Dicyclopentadiene | Based on the NITE GHS classification results |

**Reproductive cell mutagenicity**

| Chemical Name | germ cell mutagencity source information |
|---|---|
| Dicyclopentadiene | Based on the NITE GHS classification results |

**Carcinogenicity**

| Chemical Name | Carcinogenicity source information |
|---|---|
| Dicyclopentadiene | Based on the NITE GHS classification results. |

**Reproductive toxicity**

| Chemical Name | Reproductive toxicity source information |
|---|---|
| Dicyclopentadiene | Based on the NITE GHS classification results |

**STOT-single exposure**

| Chemical Name | STOT -single exposure- source information |
|---|---|
| Dicyclopentadiene | Based on the NITE GHS classification results |

**STOT-repeated exposure**

| Chemical Name | STOT -repeated exposure- source information |
|---|---|
| Dicyclopentadiene | Based on the NITE GHS classification results |

**Aspiration hazard**

| Chemical Name | Aspiration Hazard source information |
|---|---|
| Dicyclopentadiene | Based on the NITE GHS classification results. |

## Section 12: ECOLOGICAL INFORMATION

**Ecotoxicity**

| Chemical Name | Algae/aquatic plants | Fish | Crustacea |
|---|---|---|---|
| Dicyclopentadiene | *EC50:Pseudokirchneriella subcapitata 100 mg/L 96 h* | *LC50: Orange-red killifish 4.3mg/L 96 h* | *EC50:Daphnia pulex 4.2 mg/L 48 h* |

**Other data**

| Chemical Name | Short-term (acute) hazardous to the aquatic environment source information | Long-term (chronic) hazardous to the aquatic environment source information |
|---|---|---|
| Dicyclopentadiene | Based on the NITE GHS classification results | Based on the NITE GHS classification results |

**Persistence and degradability** No information available
**Bioaccumulative potential** No information available
**Mobility in soil** No information available
**Hazard to the ozone layer** No information available
**Mobility**

## Section 13: DISPOSAL CONSIDERATIONS

**Waste from residues**
Disposal should be in accordance with applicable regional, national and local laws and regulations.
**Contaminated container and contaminated packaging**
Disposal should be in accordance with applicable regional, national and local laws and regulations.

## Section 14: TRANSPORT INFORMATION

**ADR/RID**
**UN number** UN2048
**Proper shipping name:** Dicyclopentadiene
**UN classfication** 3
**Subsidiary hazard class**
**Packing group** III
**Marine pollutant** Yes

**IMDG**
**UN number** UN2048
**Proper shipping name:** Dicyclopentadiene
**UN classfication** 3
**Subsidiary hazard class**
**Packing group** III
**Marine pollutant (Sea)** Yes
**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** No information available

**IATA**
**UN number** UN2048
**Proper shipping name:** Dicyclopentadiene
**UN classfication** 3
**Subsidiary hazard class**
**Packing group** III
**Environmentally Hazardous Substance** Yes

## Section 15: REGULATORY INFORMATION

**International Inventories**
**EINECS/ELINCS** Listed
**TSCA** Listed

**Japanese regulations**

| | |
|---|---|
| **Fire Service Act** | Category IV, Class II petroleums, dangerous grade 3 |
| **Poisonous and Deleterious Substances Control Law** | Not applicable |
| **Industrial Safety and Health Act** | Harmful Substances Whose Names Are to be Indicated on the Label (Law Art.57, Para.1, Enforcement Order Art.18)<br>Notifiable Substances (Law Art.57-2, Enforcement Oder Art.18-2 Attached Table No.9)No.261<br>Dangerous Substances - Flammable Substance (Enforcement Order Attached Table 1 Item 4) |
| **Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc** | Priority Assessment Chemical Substances (Law Article 2, Para.5) |
| **Regulations for the carriage and storage of dangerous goods in ship** | Flammable Liquids (Ordinance Art.3, Ministry of Transportation Ordinance Regarding Transport by Ship and Storage, Attached Table 1) |
| **Civil Aeronautics Law** | Flammable Liquids (Ordinance Art.194, MITL Nortification for Air Transportation of Explosives etc., Attached Table 1) |
| **Marine Pollution Prevention Law** | Enforcement ordinance Appendix No. 1 Noxious liquid substance Category Y |
| **Pollutant Release and Transfer Register Law (2023.4.1-)** | Class 1 |
| **Class 1 - No.** | 190 |
| **Export Trade Control Order** | Not applicable |

| Chemical Name | Poisonous and Deleterious Substances Control Law | Industrial Safety and Health Act Substances (Law Art.57-2) (~2024.3.31) | Pollutant Release and Transfer Register Law (2023.4.1-) |
|---|---|---|---|
| Dicyclopentadiene<br>77-73-6 ( 90.0 ) | - | Applicable | Applicable |

## Section 16: OTHER INFORMATION

**Key literature references and sources for data etc.**

NITE: National Institute of Technology and Evaluation (JAPAN)
http://www.safe.nite.go.jp/japan/db.html
IATA dangerous Goods Regulations
RTECS:Registry of Toxic Effects of Chemical Substances
Japan Industrial Safety and Health Association GHS Model SDS
Dictionary of Synthetic Oraganic Chemistry , SSOCJ, Koudansha Scientific Co.Ltd.
Chemical Dictionary, Kyouritsu Publishing Co., Ltd.
etc

**Disclaimer**

This SDS is according to JIS Z 7253: 2019. The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.
GHS Classification is according to JIS Z 7252:2019. *JIS: Japanese Industrial Standards

**End of Safety Data Sheet**