# SAFETY DATA SHEET

According to JIS Z 7253:2019
**Revision date** 18-Sep-2024
Revision Number 2.06

## Section 1: PRODUCT AND COMPANY IDENTIFICATION

| | |
|---|---|
| **Product Name** | TPN Reference Material |
| **Product Code** | 207-19301 |

**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**

| | |
|---|---|
| **Acute toxicity - Inhalation (Dusts/Mists)** | Category 2 |
| **Serious eye damage/eye irritation** | Category 2A |
| **Respiratory sensitization** | Category 1 |
| **Skin sensitization** | Category 1 |
| **Carcinogenicity** | Category 2 |
| **Reproductive Toxicity** | (additional) |
| **Specific target organ toxicity (single exposure)** | Category 3 |
| **Category 3** Respiratory irritation | |
| **Specific target organ toxicity (repeated exposure)** | Category 2 |
| **Category 2** kidneys | |
| **Acute aquatic toxicity** | Category 1 |
| **Chronic aquatic toxicity** | Category 1 |

**Pictograms**

**Signal word** Danger

**Hazard statements**

H319 - Causes serious eye irritation
H330 - Fatal if inhaled
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled
H351 - Suspected of causing cancer
H362 - May cause harm to breast-fed children
H335 - May cause respiratory irritation
H317 - May cause an allergic skin reaction
H410 - Very toxic to aquatic life with long lasting effects
H400 - Very toxic to aquatic life
H373 - May cause damage to the following organs through prolonged or repeated exposure: kidneys

**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
- In case of inadequate ventilation wear respiratory protection
- Contaminated work clothing should not be allowed out of the workplace
- Wear protective gloves
- Do not breathe dust/fume/gas/mist/vapors/spray
- Use only outdoors or in a well-ventilated area
- Avoid release to the environment

**Precautionary statements-(Response)**

- IF exposed or concerned: Get medical advice/attention
- 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 ON SKIN: Wash with plenty of soap and water
- If skin irritation or rash occurs: Get medical advice/attention
- Wash contaminated clothing before reuse
- If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
- Collect spillage

**Precautionary statements-(Storage)**

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

**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** C6Cl4(CN)2

| Chemical Name | Weight-% | Molecular weight | ENCS | ISHL No. | CAS RN |
|---|---|---|---|---|---|
| Chlorothalonil | 99.0 | 265.91 | (3)-1805 | 4-(7)-539 | 1897-45-6 |

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

## 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 (CO2), 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.

**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**

Sweep up and gather scattered particles, and collect it in an empty airtight container.

**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**

Avoid contact with 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**

Avoid contact with skin, eyes or clothing. Use personal protective equipment as required.

### Storage

**Safe storage conditions**

| | |
|---|---|
| **Storage conditions** | Keep container protect from light tightly closed. Store in a cool (2-10 °C) place. |
| **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** | This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies. |

**Personal protective equipment**

| | |
|---|---|
| **Respiratory protection** | Dust mask ( JIS T 8151 ) |
| **Hand protection** | chemical protective gloves ( JIS T 8116 ) |
| **Eye protection** | protective eyeglasses or chemical safety goggles (JIS T 8147) |
| **Skin and body protection** | Long-sleeved work clothes |

**General hygiene considerations**

Handle in accordance with good industrial hygiene and safety practice.
If this product is classified as ”Chemical Substances Hazardous to Skin, etc.”, use appropriate protective equipment to them.

## Section 9: PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---|---|
| **Form** | |
| **Color** | White - nearly white |
| **Appearance** | crystals - powder or mass |
| **Odor** | no data available |
| **Melting point/freezing point** | 252-255 °C |
| **Boiling point, initial boiling point and boiling range** | no data available |
| **Flammability** | no data available |
| **Evaporation rate:** | no data available |
| **Flammability (solid, gas):** | no data available |
| **Upper/lower flammability or explosive limits** | |
| **Upper：** | no data available |
| **Lower：** | no data available |
| **Flash point** | no data available |
| **Auto-ignition temperature:** | no data available |
| **Decomposition temperature:** | no data available |
| **pH** | no data available |
| **Viscosity (coefficient of viscosity)** | no data available |
| **Dynamic viscosity** | no data available |
| **Solubilities** | acetone : soluble . water : practically insoluble,or insoluble . |
| **n-Octanol/water partition coefficient:(log Pow)** | 4.38 |
| **Vapour pressure** | no data available |
| **Specific Gravity / Relative density** | no data available |
| **Vapour density** | no data available |
| **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

**Incompatible materials**

Strong oxidizing agents

**Hazardous decomposition products**

Carbon monooxide (CO), Carbon dioxide (CO2), Nitrogen oxides (NOx), Halides

## Section 11: TOXICOLOGICAL INFORMATION

*NITE: National Institute of Technology and Evaluation (JAPAN)
https://www.chem-info.nite.go.jp/en/chem/chrip/chrip_search/srhInput

**Acute toxicity**

| Chemical Name | Oral LD50 | Dermal LD50 | Inhalation LC50 |
|---|---|---|---|
| Chlorothalonil | >10000 mg/kg (Rat) | >10000 mg/kg (Rabbit) | 0.1 mg/L (Rat) |

| | | | |
|---|---|---|---|
| | | | 4 h (vapor) |

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

**Serious eye damage/ irritation**

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

**Respiratory or skin sensitization**

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

**Reproductive cell mutagenicity**

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

**Carcinogenicity**

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

| Chemical Name | NTP | IARC | ACGIH | JSOH |
|---|---|---|---|---|
| Chlorothalonil<br>1897-45-6 | N/A | Group 2B | N/A | Group 2B |

**Reproductive toxicity**

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

**STOT-single exposure**

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

**STOT-repeated exposure**

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

**Aspiration hazard**

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

## Section 12: ECOLOGICAL INFORMATION

*NITE: National Institute of Technology and Evaluation (JAPAN)
https://www.chem-info.nite.go.jp/en/chem/chrip/chrip_search/srhInput

**Ecotoxicity**

| Chemical Name | Algae/aquatic plants | Fish | Crustacea |
|---|---|---|---|
| Chlorothalonil | *EC50:Desmodesmus subspicatus 0.57 mg/L 72 h*<br>*EC50:Pseudokirchneriella subcapitata 0.0068 mg/L 72 h static* | *LC50:Oncorhynchus mykiss 10.5 µg/L 96h* | *EC50:Daphnia magna 0.0342 -0.143 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 |
|---|---|---|
| Chlorothalonil | Based on the NITE GHS classification results. | Based on the NITE GHS classification results. |

**Persistence and degradability** Degree of decomposition：0 % by BOD (METI Existing chemical safety inspections)
**Bioaccumulative potential** No information available
**Mobility in soil** No information available
**Hazard to the ozone layer** No information available

## 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** UN2588
**Proper shipping name:** Pesticide, solid, toxic, n.o.s. (Chlorothalonil)
**UN classfication** 6.1
**Subsidiary hazard class**
**Packing group** II
**Marine pollutant** Yes

**IMDG**
**UN number** UN2588
**Proper shipping name:** Pesticide, solid, toxic, n.o.s. (Chlorothalonil)
**UN classfication** 6.1
**Subsidiary hazard class**
**Packing group** II
**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** UN2588
**Proper shipping name:** Pesticide, solid, toxic, n.o.s. (Chlorothalonil)
**UN classfication** 6.1
**Subsidiary hazard class**
**Packing group** II
**Environmentally Hazardous Substance** Yes

## Section 15: REGULATORY INFORMATION

**Japanese regulations**
**Fire Service Act** Not applicable
**Poisonous and Deleterious Substances Control Law** Not applicable
**Industrial Safety and Health Act** Not applicable
**Industrial Safety and Health Act (2024~)** 【2024.4.1~】Chemical Substances Hazardous to Skin, etc.(Regulations Article 594-2 Paragraph 1)
**Industrial Safety and Health Act (2025~)** 【2025.4.1~】Harmful Substances Whose Names Are to be Indicated on the Label (Law Art.57)
【2025.4.1~】Notifiable Substances (Law Art.57-2)
**Regulations for the carriage** Toxic Substances - Poison (Ordinance Art.3, Ministry of Transportation Ordinance

| | |
|---|---|
| **and storage of dangerous goods in ship** | Regarding Transport by Ship and Storage, Attached Table 1) |
| **Civil Aeronautics Law** | Toxic and Infectious Substances (Ordinance Art.194, MITL Nortification for Air Transportation of Explosives etc., Attached Table 1) |
| **Pollutant Release and Transfer Register Law (2023.4.1-)** | Class 1 |
| **Class 1 - No.** | 260 |
| **Water Pollution Control Act** | Specified substances(Law Art.2 Para.4, Enforcement Order Art.3-3) |
| **Export Trade Control Order** | Not applicable |

| Chemical Name | Poisonous and Deleterious Substances Control Law | Industrial Safety and Health Act Substances (Law Art.57-2) | Pollutant Release and Transfer Register Law (2023.4.1-) |
|---|---|---|---|
| Chlorothalonil 1897-45-6 ( 99.0 ) | - | - | Applicable |

## Section 16: OTHER INFORMATION

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

NITE: National Institute of Technology and Evaluation (JAPAN)
https://www.chem-info.nite.go.jp/en/chem/chrip/chrip_search/srhInput
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

**Record of SDS revisions**

The following contents were revised. Regulatory information.

**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**