# SAFETY DATA SHEET

According to JIS Z 7253:2019
**Issue Date** 14-May-2025
Revision Number 3.04

## Section 1: PRODUCT AND COMPANY IDENTIFICATION

| | |
|---|---|
| **Product Name** | Iodine, 99.9% |
| **Product Code** | 096-05442,090-05445 |

**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 - Oral** | Category 4 |
| **Acute toxicity - Inhalation (Vapors)** | Category 1 |
| **Skin corrosion/irritation** | Category 2 |
| **Serious eye damage/eye irritation** | Category 2A |
| **Skin sensitization** | Category 1 |
| **Specific target organ toxicity (single exposure)** | Category 3 |
| **Category 3** Respiratory irritation | |
| **Specific target organ toxicity (repeated exposure)** | Category 1 |
| **Category 1** thyroid gland | |
| **Acute aquatic toxicity** | Category 1 |
| **Chronic aquatic toxicity** | Category 1 |

**Pictograms**

**Signal word** Danger

**Hazard statements**

H315 - Causes skin irritation
H319 - Causes serious eye irritation
H302 - Harmful if swallowed
H330 - Fatal if inhaled
H335 - May cause respiratory irritation
H317 - May cause an allergic skin reaction
H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects
H372 - Causes damage to the following organs through prolonged or repeated exposure: thyroid gland

**Precautionary statements-(Prevention)**

• Wash face, hands and any exposed skin thoroughly after handling

- Do not eat, drink or smoke when using this product
- Wear protective gloves/protective clothing/eye protection/face protection
- Contaminated work clothing should not be allowed out of the workplace
- 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)**

- Get medical advice/attention if you feel unwell
- 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
- Take off contaminated clothing and wash before reuse
- If skin irritation or rash occurs: Get medical advice/attention
- 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
- 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** I2

| Chemical Name | Weight-% | Molecular weight | ENCS | ISHL No. | CAS RN |
|---|---|---|---|---|---|
| Iodine | 99.9 (subtracting method) | 253.8 | - | N/A | 7553-56-2 |

**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**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment

**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 reducing agents. Seal immediately after use, and to be used as soon as possible. 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. Store locked up. |
| **Safe packaging material** | Glass |
| **Incompatible substances** | Ammonia, Strong reducing 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 |
|---|---|---|---|
| Iodine<br>7553-56-2 | TWA: 0.1 ppm OEL<br>TWA: 1 mg/m$^3$ OEL | N/A | STEL: 0.1 ppm vapor fraction<br>TWA: 0.001 ppm I inhalable fraction and vapor<br>Skin |

| Chemical Name | Concentration standard value set by the Minister of Health, Labor and Welfare (8hr) | Concentration standard value set by the Minister of Health, Labor and Welfare (Short-Term) |
|---|---|---|
| Iodine<br>7553-56-2 | 0.02 ppm | N/A |

**Personal protective equipment**

**Respiratory protection** For halogen gas mask ( JIS T 8152 )
**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** blackish gray - blackish purple
**Appearance** Spherical
**Odor** characteristic odor
**Melting point/freezing point** 113.5 °C
**Boiling point, initial boiling point and boiling range** 184.3 °C
**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** Ethanol and Diethyl ether : freely soluble . water : slightly soluble .
**n-Octanol/water partition coefficient:(log Pow)** 2.49
**Vapour pressure** 0.04 kPa
**Specific Gravity / Relative density** 4.93
**Vapour density** 8.8 ( air = 1 )
**Particle characteristics** no data available

## Section 10: STABILITY AND REACTIVITY

**Stability**

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

**Hazardous reactions**

Reacs with ammonia to produce an explosive nitrogen iodides. The substance decomposes on burning producing toxic or corrosive gases and fumes.

**Conditions to avoid**

Extremes of temperature and direct sunlight

**Incompatible materials**

Ammonia, Strong reducing agents

**Hazardous decomposition products**

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 |
|---|---|---|---|
| Iodine | 315 mg/kg ( Rat ) | 3,333 mg/kg ( Rat ) | 35 ppm ( Rat ) 4 h |

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

**Serious eye damage/ irritation**

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

**Respiratory or skin sensitization**

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

**Reproductive cell mutagenicity**

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

**Carcinogenicity**

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

**Reproductive toxicity**

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

**STOT-single exposure**

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

**STOT-repeated exposure**

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

**Aspiration hazard**

| Chemical Name | Aspiration Hazard source information |
|---|---|
| Iodine | 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 |
|---|---|---|---|
| Iodine | *N/A* | *LC50 : Oncorhynchus mykiss 1.67 mg/L 96 h* | *LC50 : Daphnia magna 0.16 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 |
|---|---|---|
| Iodine | 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

## 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** UN3495
**Proper shipping name:** Iodine
**UN classfication** 8
**Subsidiary hazard class** 6.1
**Packing group** III
**Marine pollutant** Yes

**IMDG**
**UN number** UN3495
**Proper shipping name:** Iodine
**UN classfication** 8
**Subsidiary hazard class** 6.1
**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** UN3495
**Proper shipping name:** Iodine
**UN classfication** 8
**Subsidiary hazard class** 6.1
**Packing group** III
**Environmentally Hazardous Substance** Yes

## Section 15: REGULATORY INFORMATION

**Japanese regulations**
**Fire Service Act** Firefighting Inhibitor

| | |
|---|---|
| **Poisonous and Deleterious Substances Control Law** | Deleterious Substances 3rd. Grade |
| **Industrial Safety and Health Act** | Harmful Substances Whose Names Are to be Indicated on the Label (Law Art.57)<br>Notifiable Substances (Law Art.57-2)<br>Chemical Substances Hazardous to Skin, etc.(Regulations Article 594-2 Paragraph 1) |
| **Regulations for the carriage and storage of dangerous goods in ship** | Corrosive Substances (Ordinance Art.3, Ministry of Transportation Ordinance Regarding Transport by Ship and Storage, Attached Table 1) |
| **Civil Aeronautics Law** | Corrosive Substances (Ordinance Art.194, MITL Nortification for Air Transportation of Explosives etc., Attached Table 1) |
| **Pollutant Release and Transfer Register Law (2023.4.1-)** | 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-) |
|---|---|---|---|
| Iodine<br>7553-56-2 ( 99.9<br>(subtracting method) ) | Applicable | 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. Composition/information on ingredients. Exposure controls/personal protection. Stability and reactivity. Ecological information. 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**