

## SAFETY DATA SHEET

According to JIS Z 7253:2019  
**Revision date** 07-Jun-2024  
 Revision Number 3.05

## Section 1: PRODUCT AND COMPANY IDENTIFICATION

<b>Product Name</b>	Titanium(IV) Chloride Solution
<b>Product Code</b>	203-08955,205-08959

<b>Supplier</b>	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
<b>Emergency telephone number</b>	+81-6-6203-3741 / +81-3-3270-8571
<b>Recommended uses</b>	For research use only
<b>Restrictions on use</b>	Seek expert judgment when using for purposes other than those recommended.

## Section 2: HAZARDS IDENTIFICATION

**GHS classification****Classification of the substance or mixture**

Corrosive to metals

Category 1

Acute toxicity - Inhalation (Dusts/Mists)

Category 2

Skin corrosion/irritation

Category 1

Serious eye damage/eye irritation

Category 1

**Pictograms****Signal word**

Danger

**Hazard statements**

- H290 - May be corrosive to metals
- H314 - Causes severe skin burns and eye damage
- H318 - Causes serious eye damage
- H330 - Fatal if inhaled

**Precautionary statements-(Prevention)**

- Do not breathe dust/fume/gas/mist/vapors/spray
- Wash face, hands and any exposed skin thoroughly after handling
- Wear protective gloves/protective clothing/eye protection/face protection
- Keep only in original container

**Precautionary statements-(Response)**

- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
- Immediately call a POISON CENTER or doctor/physician
- 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
- IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
- Absorb spillage to prevent material damage

**Precautionary statements-(Storage)**

- Store locked up
- Store in corrosive resistant/ container with a resistant inner liner

**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** Mixture

Chemical Name	Weight-%	Molecular weight	ENCS	ISHL No.	CAS RN
Titanium(IV) Chloride	16.0 - 17.0 (as Ti)	189.68	(1)-262	*	7550-45-0
Water	35	18.02	-	-	7732-18-5

**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 contaminant and methods and materials for cleaning up

Absorb dry sand, earth, sawdust and the waste. Collect empty container that can be sealed.

#### Recovery, 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. Avoid contact with metal. 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, 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
Titanium(IV) Chloride 7550-45-0	N/A	N/A	Ceiling: 0.5 ppm HCl

### Personal protective equipment

#### Respiratory protection

Protective mask

#### 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

Colorless - pale yellowish green or pale yellow

#### Turbidity

clear ~ slightly muddy

#### Appearance

liquid

Odor	slightly, Pungent odor
Melting point/freezing point	no data available
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	Strongly acidic
Viscosity (coefficient of viscosity)	no data available
Dynamic viscosity	no data available
Solubilities	water Miscible at any arbitrary ratio .
n-Octanol/water partition coefficient:(log Pow)	no data available
Vapour pressure	no data available
Specific Gravity / Relative density	1.50-1.60 g/mL
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

Reacts with acids to generate hydrogen gas.

### Conditions to avoid

Extremes of temperature and direct sunlight

### Incompatible materials

Strong oxidizing agents

### Hazardous decomposition products

Metal oxides, Halides

## Section 11: TOXICOLOGICAL INFORMATION

### Acute toxicity

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Titanium(IV) Chloride	464 mg/kg ( Rat )	3160 mg/kg ( Rabbit )	0.46 mg/L ( Rat ) 4 h

Skin irritation/corrosion	no data available
Serious eye damage/ irritation	no data available
Respiratory or skin sensitization	no data available
Reproductive cell mutagenicity	no data available
Carcinogenicity	no data available
Reproductive toxicity	no data available
STOT-single exposure	no data available
STOT-repeated exposure	no data available
Aspiration hazard	no data available

## Section 12: ECOLOGICAL INFORMATION

<b>Ecotoxicity</b>	no data available
<b>Other data</b>	no data available
<b>Persistence and degradability</b>	No information available
<b>Bioaccumulative potential</b>	No information available
<b>Mobility in soil</b>	No information available
<b>Hazard to the ozone layer</b>	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

<b>UN number</b>	UN2922
<b>Proper shipping name:</b>	Corrosive liquid, toxic, n.o.s. (Titanium(IV) Chloride)
<b>UN classification</b>	8
<b>Subsidiary hazard class</b>	6.1
<b>Packing group</b>	II
<b>Marine pollutant</b>	Not applicable

#### IMDG

<b>UN number</b>	UN2922
<b>Proper shipping name:</b>	Corrosive liquid, toxic, n.o.s. (Titanium(IV) Chloride)
<b>UN classification</b>	8
<b>Subsidiary hazard class</b>	6.1
<b>Packing group</b>	II
<b>Marine pollutant (Sea)</b>	Not applicable
<b>Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code</b>	No information available

#### IATA

<b>UN number</b>	UN2922
<b>Proper shipping name:</b>	Corrosive liquid, toxic, n.o.s. (Titanium(IV) Chloride)
<b>UN classification</b>	8
<b>Subsidiary hazard class</b>	6.1
<b>Packing group</b>	II
<b>Environmentally Hazardous Substance</b>	Not applicable

### Section 15: REGULATORY INFORMATION

#### Japanese regulations

<b>Fire Service Act</b>	Not applicable
<b>Poisonous and Deleterious Substances Control Law</b>	Not applicable
<b>Industrial Safety and Health Act</b>	Chemical Substances Hazardous to Skin, etc.(Regulations Article 594-2 Paragraph 1)
<b>Regulations for the carriage and storage of dangerous goods in ship</b>	Corrosive Substances (Ordinance Art.3, Ministry of Transportation Ordinance Regarding Transport by Ship and Storage, Attached Table 1)
<b>Civil Aeronautics Law</b>	Corrosive Substances (Ordinance Art.194, MITL Notification for Air Transportation of

<b>Pollutant Release and Transfer Register Law (2023.4.1-)</b>	Explosives etc., Attached Table 1) Not applicable
<b>Export Trade Control Order</b>	Not applicable

## Section 16: OTHER INFORMATION

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

NITE: National Institute of Technology and Evaluation (JAPAN)  
://www.chem-info.nite.go.jp/chem/chrip/chrip\_search/systemTop  
IATA dangerous Goods Regulations  
RTECS:Registry of Toxic Effects of Chemical Substances  
Japan Industrial Safety and Health Association GHS Model SDS  
Dictionary of Synthetic Organic Chemistry , SSOCJ, Koudansha Scientific Co.Ltd.  
Chemical Dictionary, Kyouritsu Publishing Co., Ltd.  
etc

### Record of SDS revisions

The following contents were revised. Product and company Identification.  
Composition/information on ingredients. Handling and storage. Exposure controls/personal protection. Physical and chemical properties. 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**