

SAFETY DATA SHEET

Creation Date 09-April-2010

Revision Date 26-March-2024

Revision Number 5

1. Identification

Product Name Titanium(IV) chloride

Cat No. : 22979

CAS-No 7550-45-0
Synonyms Titanium tetrachloride

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company

Importer/Distributor

Fisher Scientific
112 Colonnade Road,
Ottawa, ON K2E 7L6,
Canada
Tel: 1-800-234-7437

Emergency Telephone Number

For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11

Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99

CHEMTREC Tel. No. **US**:001-800-424-9300 / **Europe**:001-703-527-3887

2. Hazard(s) identification

Classification

WHMIS 2015 Classification

Classified as hazardous under the Hazardous Products Regulations (SOR/2015-17)

| | |
|---|--------------|
| Acute Inhalation Toxicity | Category 2 |
| Skin Corrosion/Irritation | Category 1 B |
| Serious Eye Damage/Eye Irritation | Category 1 |
| Specific target organ toxicity (single exposure) | Category 3 |
| Target Organs - Respiratory system. | |
| Physical Hazards Not Otherwise Classified | Category 1 |
| Reacts violently with water | |

Label Elements

Signal Word

Danger

Hazard Statements

Fatal if inhaled
Causes severe skin burns and eye damage
May cause respiratory irritation
Reacts violently with water



Precautionary Statements

Prevention

Do not allow contact with water
Keep container tightly closed
Do not breathe dust/fumes/gas/mist/vapours/spray
Wash face, hands and any exposed skin thoroughly after handling
Use only outdoors or in a well-ventilated area
Wear protective gloves/protective clothing/eye protection/face protection
Wear respiratory protection

Response

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower
IF INHALED: Remove person to fresh air and keep comfortable for breathing
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/doctor
Wash contaminated clothing before reuse

Storage

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

Disposal

Dispose of contents/container to an approved waste disposal plant

3. Composition/Information on Ingredients

| Component | CAS-No | Weight % |
|------------------------|-----------|----------|
| Titanium tetrachloride | 7550-45-0 | >95 |

4. First-aid measures

General Advice

Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Skin Contact

Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

Inhalation

If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Remove to fresh air. Immediate medical attention is required.

| | |
|--|---|
| Ingestion | Do NOT induce vomiting. Call a physician or poison control center immediately. |
| Most important symptoms/effects | Causes burns by all exposure routes. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation |
| Notes to Physician | Treat symptomatically |

5. Fire-fighting measures

| | |
|---|---|
| Suitable Extinguishing Media | CO ₂ , dry chemical, dry sand, alcohol-resistant foam. |
| Unsuitable Extinguishing Media | Water |
| Flash Point | No information available |
| Method - | No information available |
| Autoignition Temperature | No information available |
| Explosion Limits | |
| Upper | No data available |
| Lower | No data available |
| Sensitivity to Mechanical Impact | No information available |
| Sensitivity to Static Discharge | No information available |

Specific Hazards Arising from the Chemical

Thermal decomposition can lead to release of irritating gases and vapors. The product causes burns of eyes, skin and mucous membranes. Reacts violently with water.

Hazardous Combustion Products

Hydrogen chloride gas.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

| | | | |
|---------------|---------------------|--------------------|-------------------------|
| Health | Flammability | Instability | Physical hazards |
| 4 | 0 | 2 | W |

6. Accidental release measures

| | |
|---|---|
| Personal Precautions | Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. |
| Environmental Precautions | Should not be released into the environment. |
| Methods for Containment and Clean Up | Keep in suitable, closed containers for disposal. Soak up with inert absorbent material. Do not expose spill to water. |

7. Handling and storage

| | |
|-----------------|--|
| Handling | Do not get in eyes, on skin, or on clothing. Wear personal protective equipment/face protection. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance. Do not allow contact with water. |
| Storage. | Corrosives area. Keep under nitrogen. Keep away from water or moist air. Keep containers tightly closed in a dry, cool and well-ventilated place. Incompatible Materials. Water. Strong oxidizing agents. Alcohols. |

8. Exposure controls / personal protection

Exposure Guidelines

This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

| Component | Alberta | British Columbia | Ontario TWAEV | Quebec | ACGIH TLV | OSHA PEL | NIOSH |
|------------------------|---------|------------------|---------------|--------|------------------|----------|-------|
| Titanium tetrachloride | | | | | Ceiling: 0.5 ppm | | |

Engineering Measures

Ensure that eyewash stations and safety showers are close to the workstation location. Use only under a chemical fume hood.
Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment**Eye Protection**

Goggles

Hand Protection

Protective gloves

| Glove material | Breakthrough time | Glove thickness | Glove comments |
|---|-----------------------------------|-----------------|------------------------|
| Natural rubber Nitrile rubber Neoprene PVC | See manufacturers recommendations | - | Splash protection only |

Inspect gloves before use. observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information) gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. gloves with care avoiding skin contamination.

Respiratory Protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

Recommended Filter type: Particulates filter conforming to EN 143 or Inorganic gases and vapours filter Type B Grey conforming to EN14387

When RPE is used a face piece Fit Test should be conducted

Environmental exposure controls

No information available.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

9. Physical and chemical properties

| | |
|--------------------------|--------------------------|
| Physical State | Liquid |
| Appearance | Light yellow |
| Odor | No information available |
| Odor Threshold | No information available |
| pH | No information available |
| Melting Point/Range | -24 °C / -11.2 °F |
| Boiling Point/Range | 136.5 °C / 277.7 °F |
| Flash Point | No information available |
| Evaporation Rate | No information available |
| Flammability (solid,gas) | Not applicable |

Flammability or explosive limits

| | |
|--|--------------------------|
| Upper | No data available |
| Lower | No data available |
| Vapor Pressure | No information available |
| Vapor Density | No information available |
| Specific Gravity | 1.720 |
| Solubility | Reacts with water |
| Partition coefficient; n-octanol/water | No data available |
| Autoignition Temperature | No information available |
| Decomposition Temperature | No information available |
| Viscosity | 0.82 mPa.s at 20 °C |
| Molecular Formula | Cl ₄ Ti |
| Molecular Weight | 189.71 |

10. Stability and reactivity

| | |
|---|--|
| Reactive Hazard | Yes |
| Stability | Moisture sensitive. |
| Conditions to Avoid | Exposure to moist air or water. Incompatible products. Exposure to moisture. |
| Incompatible Materials | Water, Strong oxidizing agents, Alcohols |
| Hazardous Decomposition Products | Hydrogen chloride gas |
| Hazardous Polymerization | Hazardous polymerization does not occur. |
| Hazardous Reactions | None under normal processing. Reacts violently with water. |

11. Toxicological information

Acute Toxicity
Product Information
Component Information

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|------------------------|--------------------------|-----------------------|----------------------|
| Titanium tetrachloride | LD50 = 464 mg/kg (Rat) | 3160 mg/kg (Rabbit) | 0.46 mg/L/4h (Rat) |

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

| | |
|------------------------|--|
| Irritation | Causes burns by all exposure routes |
| Sensitization | No information available |
| Carcinogenicity | The table below indicates whether each agency has listed any ingredient as a carcinogen. |

| Component | CAS-No | IARC | NTP | ACGIH | OSHA | Mexico |
|------------------------|-----------|------------|------------|------------|------------|------------|
| Titanium tetrachloride | 7550-45-0 | Not listed | Not listed | Not listed | Not listed | Not listed |

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Respiratory system
STOT - repeated exposure None known

| | |
|---|--|
| Aspiration hazard | No information available |
| Symptoms / effects, both acute and delayed | Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation |
| Endocrine Disruptor Information | No information available |
| Other Adverse Effects | The toxicological properties have not been fully investigated. |

12. Ecological information

Ecotoxicity

Reacts with water so no ecotoxicity data for the substance is available.

Persistence and Degradability Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Is not likely mobile in the environment.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No UN1838
Proper Shipping Name consumer commodity TITANIUM TETRACHLORIDE
Hazard Class 6.1
Subsidiary Hazard Class 8
Packing Group I

TDG

Forbidden

IATA

FORBIDDEN FOR IATA TRANSPORT

UN-No UN1838
Proper Shipping Name TITANIUM TETRACHLORIDE FORBIDDEN FOR IATA TRANSPORT
Hazard Class 6.1
Subsidiary Hazard Class 8
Packing Group I

IMDG/IMO

UN-No UN1838
Proper Shipping Name TITANIUM TETRACHLORIDE
Hazard Class 6.1
Subsidiary Hazard Class 8
Packing Group I

15. Regulatory information

International Inventories

| Component | CAS-No | DSL | NDSL | TSCA | TSCA Inventory notification - Active-Inactive | EINECS | ELINCS | NLP |
|------------------------|-----------|-----|------|------|---|-----------|--------|-----|
| Titanium tetrachloride | 7550-45-0 | X | - | X | ACTIVE | 231-441-9 | - | - |

| Component | CAS-No | IECSC | KECL | ENCS | ISHL | TCSI | AICS | NZIoC | PICCS |
|------------------------|-----------|-------|----------|------|------|------|------|-------|-------|
| Titanium tetrachloride | 7550-45-0 | X | KE-33923 | X | X | X | X | X | X |

Legend:

X - Listed '-' - Not Listed

KECL - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

INECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

IECSC - Chinese Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

ENCS - Japanese Existing and New Chemical Substances

AICS - Australian Inventory of Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

Canada

SDS in compliance with provisions of information as set out in Canadian Standard - Part 4, Schedule 1 and 2 of the Hazardous Products Regulations (HPR) and meets the requirements of the HPR (Paragraph 13(1)(a) of the Hazardous Products Act (HPA)).

| Component | Canada - National Pollutant Release Inventory (NPRI) | Canadian Environmental Protection Agency (CEPA) - List of Toxic Substances | Canada's Chemicals Management Plan (CEPA) |
|------------------------|--|--|---|
| Titanium tetrachloride | Part 1, Group A Substance | | |

Legend

NPRI - National Pollutant Release Inventory

Other International Regulations**Authorisation/Restrictions according to EU REACH**

| Component | REACH (1907/2006) - Annex XIV - Substances Subject to Authorization | REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances | REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC) |
|------------------------|---|---|---|
| Titanium tetrachloride | - | Use restricted. See item 75. (see link for restriction details) | - |

REACH links
<https://echa.europa.eu/substances-restricted-under-reach>
Safety, health and environmental regulations/legislation specific for the substance or mixture

| Component | CAS-No | OECD HPV | Persistent Organic Pollutant | Ozone Depletion Potential | Restriction of Hazardous Substances (RoHS) |
|------------------------|-----------|----------|------------------------------|---------------------------|--|
| Titanium tetrachloride | 7550-45-0 | Listed | Not applicable | Not applicable | Not applicable |

| Component | CAS-No | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements | Rotterdam Convention (PIC) | Basel Convention (Hazardous Waste) |
|------------------------|-----------|---|--|----------------------------|------------------------------------|
| Titanium tetrachloride | 7550-45-0 | Not applicable | Not applicable | Not applicable | Not applicable |

16. Other information**Prepared By**

Product Safety Department
 Email: chem.techinfo@thermofisher.com
www.thermofisher.com

Creation Date

09-April-2010

Revision Date

26-March-2024

Print Date

26-March-2024

Revision Summary

New emergency telephone response service provider.

Disclaimer

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, use, processing, storage, transportation, disposal and release 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

End of SDS