

## Chemical Safety Data Sheet MSDS / SDS

**Tantalum(V) chloride**

Revision Date:2025-02-01 Revision Number:1

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****Product identifier**

Product name : Tantalum(V) chloride  
CBnumber : CB3692046  
CAS : 7721-01-9  
EINECS Number : 231-755-6  
Synonyms : TaCl<sub>5</sub>, Tantalum chloride

**Relevant identified uses of the substance or mixture and uses advised against**

Relevant identified uses : For R&D use only. Not for medicinal, household or other use.  
Uses advised against : none

**Company Identification**

Company : Chemicalbook  
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing  
Telephone : 400-158-6606

**SECTION 2: Hazards identification****GHS Label elements, including precautionary statements**

Symbol(GHS)



Signal word

Danger

**Precautionary statements**

P405 Store locked up.

P310 Immediately call a POISON CENTER or doctor/physician.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continuerinsing.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing. Rinse SKIN with water/shower.

P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

**Hazard statements**

H318 Causes serious eye damage

H314 Causes severe skin burns and eye damage

## SECTION 3: Composition/information on ingredients

### Substance

|              |                                         |
|--------------|-----------------------------------------|
| Product name | : Tantalum(V) chloride                  |
| Synonyms     | : TaCl <sub>5</sub> , Tantalum chloride |
| CAS          | : 7721-01-9                             |
| EC number    | : 231-755-6                             |
| MF           | : Cl <sub>5</sub> Ta                    |
| MW           | : 358.21                                |

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## SECTION 4: First aid measures

### Description of first aid measures

#### General advice

First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

#### If inhaled

After inhalation: fresh air. Call in physician.

#### In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

#### In case of eye contact

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

#### If swallowed

After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

### Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

### Indication of any immediate medical attention and special treatment needed

No data available

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## SECTION 5: Firefighting measures

### Extinguishing media

#### Suitable extinguishing media

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

#### Unsuitable extinguishing media

Water Foam

### Special hazards arising from the substance or mixture

Hydrogen chloride gas Tantalum Oxides

Not combustible.

May not get in touch with: Water

Ambient fire may liberate hazardous vapours.

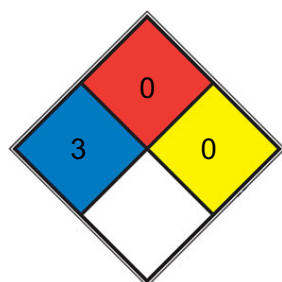
### Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

### Further information

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

### NFPA 704



**HEALTH 3** Short exposure could cause serious temporary or moderate residual injury (e.g. [liquid hydrogen](#), [sulfuric acid](#), [calcium hypochlorite](#), hexafluorosilicic acid)

**FIRE 0** Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand. Materials that will not burn in air when exposed to a temperature of 820 °C (1,500 °F) for a period of 5 minutes.(e.g. Carbon tetrachloride)

**REACT 0** Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium,[N2](#))

**SPEC.**

**HAZ.**

## SECTION 6: Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

For personal protection see section 8.

### Environmental precautions

Do not let product enter drains.

### Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of

properly. Clean up affected area. Avoid generation of dusts.

### **Reference to other sections**

For disposal see section 13.

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## **SECTION 7: Handling and storage**

### **Precautions for safe handling**

#### **Advice on safe handling**

Keep workplace dry. Do not allow product to come into contact with water.

#### **Hygiene measures**

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

For precautions see section 2.2.

### **Conditions for safe storage, including any incompatibilities**

#### **Storage conditions**

Tightly closed. Dry.

Never allow product to get in contact with water during storage. Moisture sensitive.

#### **Specific end use(s)**

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## **SECTION 8: Exposure controls/personal protection**

### **control parameter**

#### **Hazard composition and occupational exposure limits**

Does not contain substances with occupational exposure limits.

### **Exposure controls**

#### **Personal protective equipment**

##### **Eye/face protection**

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

##### **Skin protection**

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0,11 mm Break through time: 480 min

Material tested:KCL 741 Dermatril? L

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Splash contact Material: Nitrile rubber

Minimum layer thickness: 0,11 mm Break through time: 480 min

Material tested:KCL 741 Dermatril? L

#### Body Protection

protective clothing

#### Respiratory protection

required when dusts are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Recommended Filter type: Filter type P2

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.

These measures have to be properly documented.

#### Control of environmental exposure

Do not let product enter drains.

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## SECTION 9: Physical and chemical properties

### Information on basic physicochemical properties

|                                              |                                                                                                             |
|----------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| Appearance                                   | powder                                                                                                      |
| Odour                                        | No data available                                                                                           |
| Odour Threshold                              | No data available                                                                                           |
| pH                                           | No data available                                                                                           |
| Melting point/freezing point                 | 221 °C                                                                                                      |
| Initial boiling point and boiling range      | 232 - 235 °C                                                                                                |
| Flash point                                  | 242°C                                                                                                       |
| Evaporation rate                             | No data available                                                                                           |
| Flammability (solid, gas)                    | The product is not flammable.                                                                               |
| Upper/lower flammability or explosive limits | No data available                                                                                           |
| Vapour pressure                              | No data available                                                                                           |
| Vapour density                               | No data available                                                                                           |
| Relative density                             | 3.68                                                                                                        |
| Water solubility                             | Soluble in ether, carbon tetrachloride, sulfuric acid and potassium hydroxide. Slightly soluble in ethanol. |
| Partition coefficient: n-octanol/water       | No data available                                                                                           |
| Autoignition temperature                     | No data available                                                                                           |
| Decomposition temperature                    | No data available                                                                                           |

Viscosity Viscosity, kinematic: No data available Viscosity, dynamic: No data available

Explosive properties No data available

Oxidizing properties No data available

### Other safety information

No data available

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## SECTION 10: Stability and reactivity

### Reactivity

Reacts violently with water.

### Chemical stability

sensitive to moisture

### Possibility of hazardous reactions

Violent reactions possible with:

alkalines acids

Exothermic reaction with:

Water Hydrolysis

### Conditions to avoid

Moisture.

### Incompatible materials

No data available

### Hazardous decomposition products

In the event of fire: see section 5

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## SECTION 11: Toxicological information

### Information on toxicological effects

#### Acute toxicity

LD50 Oral - Rat - 1.900 mg/kg

Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.

Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:., damage of respiratory tract

Dermal

#### Skin corrosion/irritation

#### Serious eye damage/eye irritation

Causes serious eye damage.

#### Respiratory or skin sensitization

No data available

#### **Germ cell mutagenicity**

Test system: Bacillus subtilis

Metabolic activation: without metabolic activation Result: negative

Test Type: In vitro mammalian cell gene mutation test Test system: Chinese hamster lung cells

Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 476

Result: negative

Test Type: Mutagenicity (mammal cell test): micronucleus. Test system: Chinese hamster lung cells

Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 487

Result: negative

#### **Carcinogenicity**

No data available

#### **Reproductive toxicity**

No data available

#### **Specific target organ toxicity - single exposure**

May cause respiratory irritation.

#### **Specific target organ toxicity - repeated exposure**

No data available

#### **Aspiration hazard**

No data available

#### **Toxicity**

LD50 in rats (mg/kg): 75 i.p.; 1900 orally (Cochran)

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## SECTION 12: Ecological information

### **Toxicity**

#### **Toxicity to fish**

semi-static test LL50 - Danio rerio (zebra fish) - > 100 mg/l - 96 h (OECD Test Guideline 203)

Remarks: (above the solubility limit in the test medium)

#### **Toxicity to daphnia and other aquatic invertebrates**

semi-static test - Daphnia magna (Water flea) - 3.086 mg/l - 48 h (OECD Test Guideline 202)

Remarks: (above the solubility limit in the test medium)

#### **Toxicity to algae**

static test ErC50 - Pseudokirchneriella subcapitata (green algae) - >

2.000 mg/l - 72 h

(OECD Test Guideline 201)

Remarks: (above the solubility limit in the test medium)

#### **Toxicity to bacteria**

Respiration inhibition EC50 - activated sludge - > 1.000 mg/l - 3 h (OECD Test Guideline 209)

Remarks: (above the solubility limit in the test medium)

### **Persistence and degradability**

The methods for determining the biological degradability are not applicable to inorganic substances.

### **Bioaccumulative potential**

No data available

### **Mobility in soil**

No data available

### **Results of PBT and vPvB assessment**

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

### **Other adverse effects**

Reacts with water to form toxic decomposition products. Discharge into the environment must be avoided.

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## SECTION 13: Disposal considerations

### **Waste treatment methods**

### **Product**

See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

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## SECTION 14: Transport information

### **SECTION 14: Transport information**

UN number

ADR/RID:IMDG:IATA:ADR/RID:IMDG:IATA:

UN number

ADR/RID:IMDG:IATA:ADR/RID:IMDG:IATA:

UN number

ADR/RID:IMDG:IATA:ADR/RID:IMDG:IATA:

### **Transport hazard class(es)**

ADR/RID: - IMDG: - IATA: -

ADR/RID: - IMDG: - IATA: -

ADR/RID: 2603 IMDG: 2603 IATA: 2603

ADR/RID: - IMDG: - IATA: -

ADR/RID: 1987 IMDG: 1987 IATA: 1987

ADR/RID: 1147 IMDG: 1147 IATA: 1147

ADR/RID: 1673 IMDG: 1673 IATA: 1673



ADR/RID: - IMDG: - IATA: -

ADR/RID: 1993 IMDG: 1993 IATA: 1993

ADR/RID: 1993 IMDG: 1993 IATA: 1993

### UN proper shipping name

ADR/RID: FLAMMABLE LIQUID, N.O.S. (o-Fluorostyrene) IMDG: FLAMMABLE LIQUID, N.O.S. (o-Fluorostyrene) IATA: Flammable liquid, n.o.s. (o-Fluorostyrene)

ADR/RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (S-(+)-Fluoxetine hydrochloride) IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (S-(+)-Fluoxetine IATA: Environmentally hazardous substance, solid, n.o.s. hydrochloride)

ADR/RID: FLAMMABLE LIQUID, N.O.S. (chlorotrimethylsilane) IMDG: FLAMMABLE LIQUID, N.O.S. (chlorotrimethylsilane) IATA: Flammable liquid, n.o.s. (chlorotrimethylsilane)

ADR/RID: - IMDG: - IATA: -

ADR/RID: PHENYLENEDIAMINES IMDG: PHENYLENEDIAMINES IATA: Phenylenediamines

ADR/RID: DECAHYDRONAPHTHALENE IMDG: DECAHYDRONAPHTHALENE IATA: Decahydronaphthalene

ADR/RID: ALCOHOLS, N.O.S. (Penta-1,4-dien-3-ol) IMDG: ALCOHOLS, N.O.S. (Penta-1,4-dien-3-ol) IATA: Alcohols, n.o.s. (Penta-1,4-dien-3-ol)

ADR/RID: Not dangerous goods IMDG: Not dangerous goods IATA: Not dangerous goods

ADR/RID: CYCLOHEPTATRIENE IMDG: CYCLOHEPTATRIENE IATA: Cycloheptatriene

ADR/RID: - IMDG: - IATA: -

ADR/RID: - IMDG: - IATA: -

### Environmental hazards

ADR/RID: no IMDG Marine pollutant: no IATA: no

ADR/RID: no IMDG Marine pollutant: no IATA: no

ADR/RID: 3 (6.1) IMDG: 3 (6.1) IATA: 3 (6.1)

ADR/RID: - IMDG: - IATA: -

ADR/RID: 3 IMDG: 3 IATA: 3

ADR/RID: 3 IMDG: 3 IATA: 3

ADR/RID: 6.1 IMDG: 6.1 IATA: 6.1

ADR/RID: no IMDG Marine pollutant: no IATA: no

ADR/RID: 3 IMDG: 3 IATA: 3

(S-(+)-Fluoxetine ADR/RID: 9 IMDG: 9 IATA: 9

ADR/RID: 3 IMDG: 3 IATA: 3

### Packaging group

ADR/RID: III IMDG: III IATA: III

ADR/RID: II IMDG: II IATA: II

ADR/RID: III IMDG: III IATA: III

ADR/RID: III IMDG: III IATA: III

ADR/RID: III IMDG: III IATA: III

ADR/RID: - IMDG: - IATA: -

ADR/RID: II IMDG: II IATA: II

No data available

ADR/RID: III IMDG: III IATA: III

No data available

### **Environmental hazards**

ADR/RID: no IMDG Marine pollutant: no IATA: no

ADR/RID: no IMDG Marine pollutant: no IATA: no

ADR/RID: no IMDG Marine pollutant: no IATA: no Special precautions for user Further information Not classified as dangerous in the meaning of transport regulations.

ADR/RID: no IMDG Marine pollutant: no IATA: no

ADR/RID: yes IMDG Marine pollutant: yes IATA: no

ADR/RID: yes IMDG Marine pollutant: yes IATA: no

ADR/RID: no IMDG Marine pollutant: no IATA: no

ADR/RID: yes IMDG Marine pollutant: yes IATA: yes hydrochloride) Special precautions for user Further information EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids. Packages smaller than or equal to 5 kg / L , not dangerous goods of Class 9

### **Special precautions for user**

No data available

No data available

No data available

No data available

No data available

No data available

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## SECTION 15: Regulatory information

### **Safety, health and environmental regulations/legislation specific for the substance or mixture**

#### **Regulations on the Safety Management of Hazardous Chemicals**

China Catalog of Hazardous chemicals 2015:Listed. website: <https://www.mem.gov.cn/>

#### **Measures for Environmental Management of New Chemical Substances**

Philippines Inventory of Chemicals and Chemical Substances (PICCS):Not Listed. website: <https://emb.gov.ph/>

Vietnam National Chemical Inventory:Listed. website: <https://chemicaldata.gov.vn/>

United States Toxic Substances Control Act (TSCA) Inventory:Listed. website: <https://www.epa.gov/>

New Zealand Inventory of Chemicals (NZIoC):Listed. website: <https://www.epa.govt.nz/>

Korea Existing Chemicals List (KECL):Listed. website: <http://ncis.nier.go.kr>

European Inventory of Existing Commercial Chemical Substances (EINECS):Listed. website: <https://echa.europa.eu/>

EC Inventory:Listed.

Chinese Chemical Inventory of Existing Chemical Substances (China IECSC):Listed. website: <https://www.mee.gov.cn/>

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## SECTION 16: Other information

### **Abbreviations and acronyms**

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

CAS: Chemical Abstracts Service

EC50: Effective Concentration 50%

IATA: International Air Transportation Association

IMDG: International Maritime Dangerous Goods

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

STEL: Short term exposure limit

TWA: Time Weighted Average

## References

- 【1】 CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
- 【2】 ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
- 【3】 ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>
- 【4】 eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website:  
[http://www.echemportal.org/echemportal/index?pageID=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en)
- 【5】 ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>
- 【6】 Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
- 【7】 HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- 【8】 IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- 【9】 IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- 【10】 Sigma-Aldrich, website: <https://www.sigmaaldrich.com/>

### Disclaimer:

The information in this MSDS is only applicable to the specified product, unless otherwise specified, it is not applicable to the mixture of this product and other substances. This MSDS only provides information on the safety of the product for those who have received the appropriate professional training for the user of the product. Users of this MSDS must make independent judgments on the applicability of this SDS. The authors of this MSDS will not be held responsible for any harm caused by the use of this MSDS.