1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Titanium(IV) chloride
Product Number: 69545
Brand: Fluka
Supplier: Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63113
USA
Telephone: +1 800-355-5832
Fax: +1 800-355-5052
Emergency Phone # (For both supplier and manufacturer): (314) 776-8555
Preparation Information: Sigma-Aldrich Corporation
Product Safety - Americas Region
1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Target Organ Effect, Highly toxic by inhalation, Corrosive

Target Organs

Lungs

Other hazards which do not result in classification
Lachrymator.

GHS Classification
Acute toxicity, Inhalation (Category 2)
Skin corrosion (Category 1B)
Serious eye damage (Category 1)

GHS Label elements, including precautionary statements

Signal word: Danger

Hazard statement(s)
H314 Causes severe skin burns and eye damage.
H330 Fatal if inhaled.

Precautionary statement(s)
P260 Do not breathe dust/fume/gas/mist/ vapours/ spray.
P260 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P284 Wear respiratory protection.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER or doctor/physician.

GHS Classification

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: Titanium tetrachloride

Formula: Cl4Ti

Molecular Weight: 189.68 g/mol

Component | Concentration |
--- | --- |
Titanium tetrachloride | |
CAS No. | 7550-45-9 |
EC-No. | 231-444-5 |
Index-No. | 022-001-16-5 |

4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Remove out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

Conditions of flammability
Not flammable or combustible.

Suitable extinguishing media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Dry powder

Special protective equipment for firefighters
Wear self-contained breathing apparatus for fire fighting if necessary.
Hazardous combustion products
Hazardous decomposition products formed under fire conditions. - Hydrogen chloride gas, Titanium/titanium oxides

Further Information
The product itself does not burn.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

Environmental precautions
Prevent further leakage or spilling if safe to do so. Do not let product enter drains.

Methods and materials for containment and cleanup
Soak up with inert absorbent material and dispose of as hazardous waste. Do not flush with water. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Keep away from water. Never allow product to get in contact with water during storage.

Handle and store under inert gas. Moisture sensitive. Reacts violently with water.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Titanium dichloride</td>
<td>7550-45-9</td>
<td>TWA</td>
<td>9.5 mg/m3</td>
<td>USA, Workplace Environmental Exposure Levels (WEEL)</td>
</tr>
</tbody>
</table>

Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
Hands with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

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

Skin and body protection
Complete suit protecting against chemicals. Flame retardant protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
Form: liquid
Colour: no data available

Safety data
pH: no data available
Melting point/freezing point: Melting point/range: -25 °C (-10 °F)
Boiling point: 135 - 136 °C (275 - 277 °F)
Flash point: no data available
Ignition temperature: no data available
Autoignition temperature: no data available
Lower explosion limit: no data available
Upper explosion limit: no data available
Vapour pressure: 12.8 hPa (9.6 mmHg) at 20 °C (68 °F)
Density: 87 hPa (69 mmHg) at 55 °C (131 °F)
Water solubility: 1.73 g/mL at 20 °C (68 °F)
Partition coefficient: n-octanol/water: no data available
Relative vapour density: no data available
Odour: no data available
Odour Threshold: no data available
Evaporation rate: no data available

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
Reacts violently with water.

Conditions to avoid
Exposure to moisture.

Materials to avoid
Strong oxidizing agents, Water

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Hydrogen chloride gas, Titanium/titanium oxides
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity
Oral LD50: no data available
Inhalation LC50: no data available
**12. ECOLOGICAL INFORMATION**

- **Toxicity:** no data available
- **Persistence and degradability:** no data available
- **Bioaccumulative potential:** no data available
- **Mobility in soil:** no data available
- **PBT and vPvB assessment:** no data available
- **Other adverse effects:** no data available

**13. DISPOSAL CONSIDERATIONS**

- **Product:** Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.
- **Contaminated packaging:** Dispose of as unused product.

**14. TRANSPORT INFORMATION**

- **DOT (US):**
  - UN number: 1838  Class: 6.1 (8)  Packing group: I
  - Proper shipping name: Titanium tetrachloride
  - Risk Phrases: R17, R40, R50, R53
  - Health hazard: May cause long-term adverse health effects
  - Environmental harm: Harmful to aquatic life

- **IMDG:**
  - UN number: 1838  Class: 6.1 (8)  Packing group: I
  - Proper shipping name: TITANIUM TETRACHLORIDE
  - Marine pollutant: No

- **IATA:**
  - UN number: 1838  Class: 6.1 (8)
  - Proper shipping name: Titanium tetrachloride
  - IATA Cargo: Not permitted for transport

**15. REGULATORY INFORMATION**

- **OSHA Hazards:** Target Organ Effect, Highly toxic by inhalation, Corrosive

**SARA 302 Components**

- The following components are subject to reporting levels as established by SARA Title III, Section 302:
  - CAS-No: 7550-45-0
  - Revision Date: 2007-07-01

**SARA 313 Components**

- The following components are subject to reporting levels established by SARA Title III, Section 313:
  - CAS-No: Revision Date
Titanium tetrachloride 7550-45-0 2007-07-01

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard
Massachusetts Right To Know Components

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Pennsylvania Right To Know Components

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New Jersey Right To Know Components

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California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Further information
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