1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product Identifier

Product name  Titanium Tetrachloride
UN/ID no  UN1838

Recommended use of the chemical and restrictions on use

Recommended Use  production of titanium dioxide, Production of titanium metal components, chemical intermediate, polyolefines catalyst, surface treatment, manufacture of titanium metal
Uses advised against  For use in industrial installations only.

Details of the supplier of the safety data sheet

Supplier Address  INEOS Pigments
A Division of INEOS USA Inc.
6752 Baymeadow Drive
Glen Burnie, MD 21060

For further information, please contact

E-mail address  regulatory.pigments@ineos.com

24 Hour Emergency Phone Number

Emergency telephone  Chemtrec (USA) 1-800-424-9300

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity - Inhalation (Vapors)  Category 2
Skin corrosion/irritation  Category 1B
Serious eye damage/eye irritation  Category 1
Specific target organ toxicity (single exposure)  Category 3

Label Elements

EMERGENCY OVERVIEW
DANGER

Hazard statements  Fatal if inhaled
Causes severe skin burns and eye damage
May cause respiratory irritation
Precautionary Statements - Prevention
Do not breathe dust/fume/gas/mist/vapors/spray
Do not get in eyes, on skin, or on clothing
Use only outdoors or in a well-ventilated area
Wear respiratory protection
Wear protective gloves/protective clothing/eye protection/face protection

Precautionary Statements - Response
Immediately call a POISON CENTER or doctor/physician
Wash contaminated clothing before reuse

Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Skin
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

Ingestion
IF SWALLOWED: rinse mouth. Do NOT induce vomiting

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

Precautionary Statements - Disposal
Dispose of contents/container to to an approved waste disposal plant in accordance with local/regional/national/international regulations

Other Information
Hazards not otherwise classified (HNOC) Not applicable

Other Hazards
Reacts with water. Forms corrosive solutions and an opaque white cloud of titanium oxychloride and hydrochloric acid.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS No</th>
<th>weight-%</th>
<th>Trade secret</th>
</tr>
</thead>
<tbody>
<tr>
<td>Titanium tetrachloride</td>
<td>7550-45-0</td>
<td>100%</td>
<td>*</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

FIRST AID MEASURES

General advice
In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). Remove contaminated clothing and shoes.

Eye Contact
Wipe excess product with a clean dry cloth before rinsing. Rinse thoroughly with plenty of water, also under the eyelids. Remove contact lenses, if present and easy to do. Continue rinsing. Immediate medical attention is required.
Titanium Tetrachloride

Skin contact
Remove contaminated clothing and shoes. BEFORE rinsing with water, carefully wipe away with dry cloth until product is removed from skin. Wash off immediately with plenty of water for at least 15 minutes. Seek immediate medical attention/advice.

Inhalation
If suspected fumes are still present, rescuer should wear appropriate self-contained breathing apparatus. Remove from exposure, lie down. If breathing is difficult, give oxygen. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Call a physician or poison control center immediately.

Ingestion
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Clean mouth with water and drink afterwards plenty of water. If swallowed, do not induce vomiting: seek medical advice immediately and show this safety data sheet.

Self-protection of the first aider
Ensure operatives are trained to minimize exposures. Avoid contact with skin, eyes or clothing. 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. First aider: Pay attention to self-protection. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

Most important symptoms and effects, both acute and delayed
Symptoms
Fatal if inhaled. The product causes burns of eyes, skin and mucous membranes.

Indication of any immediate medical attention and special treatment needed
Note to physicians
Treat symptomatically. Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed. May cause pulmonary edema. Keep victim under observation. Pulmonary edema and chemical pneumonia can develop and may occur hours after exposure. The symptoms of pulmonary edema are often only manifested after several hours and can be aggravated by physical exertion. Pulmonary edema is manifested mainly by increasing respiratory difficulties. A victim must remain under medical supervision as long as the possibility of pulmonary edema due to delayed toxicity is not ruled out.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Use CO2, dry chemical, dry sand, alcohol-resistant foam

Unsuitable Extinguishing Media
DO NOT USE WATER.

Specific hazards arising from the chemical
Substance will react with water (some violently), releasing corrosive and/or toxic gases. Contact with water when in a vessel or confined space can generate dangerous pressure and heat. Hydrogen evolved from the reaction of titanium tetrachloride with water/moisture and some metals presents a high risk of fire/explosion. In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous combustion products
Hazardous metal fumes and oxides. Halogenated compounds. Reacts violently with water. Contact with water when in a vessel or confined space can generate dangerous pressure and heat. If tanks / containers have not been damaged, cool closed tanks and containers and pipes exposed to fire by spraying water to prevent build-up of pressure. Do not allow run-off from fire-fighting to enter drains or water courses. Runoff to sewer may create fire or explosion hazard. Given its boiling temperature, risk of bursting of the tanks and capacities by increase of the internal pressure under the action of the heat of the fire. The possibility of mixing with water in the pipes, should be avoided. Hydrogen released from the reaction of titanium tetrachloride on contact with water and certain metals presents a high risk of fire / explosion. Titanium tetrachloride is not flammable but may be caught in a fire. In the event of fire and only if the containers are not damaged, if it is possible then uniformly cool with water spray where it is exposed to heat, but only if there is NO direct contact with water.

Explosion data
Sensitivity to Mechanical Impact
None.

Sensitivity to Static Discharge
None.
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. Firefighters should wear an acid resistant suit with a self contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions
Stay upwind. Ensure adequate ventilation, especially in confined areas. Do not get in eyes, on skin, or on clothing. DO NOT CLEAN-UP OR DISPOSE OF, EXCEPT UNDER SUPERVISION OF A SPECIALIST. Wash thoroughly after handling.

For emergency responders
Fatal if inhaled. Wear respiratory protection. Use personal protection recommended in Section 8. Approach area from upwind.

Environmental Precautions
Prevent further leakage or spillage if safe to do so. Do not allow into any sewer, on the ground or into any body of water. Prevent product from entering drains. If fume cannot be contained in release area, notify personnel and neighbors in path of fume. Local authorities should be advised if significant spillages cannot be contained.

Methods and material for containment and cleaning up

Small Spill
Prevent further leakage or spillage if safe to do so. Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container. Neutralize with chalk, limestone, slaked lime, powder cement, sodium carbonate or bicarbonate. Collect any residual solid material after neutralization for disposal as hazardous waste. Following product recovery, flush area with water.

Large Spill
Notify appropriate emergency services and activate the site emergency plan. Action restricted to trained personnel wearing suitable protection. Mark out the contaminated area and prohibit access to non-authorized persons. Approach area from upwind. Prevent further leakage or spillage if safe to do so. Position damaged containers with the leak on the top to prevent the liquid from flowing out of the container. If possible move containers from spill area. Prevent entry into waterways, sewers, basements or confined areas. Cover liquid spill with sand, earth or other non-combustible absorbent material. Fumes from the surface of the spillage may be suppressed using medium expansion vapor suppressing foam or by spreading chalk over the surface if safe to do so. Pump up the product into an auxiliary container which is acid-resistant and suitable labelled. If fume cannot be contained in release area, notify personnel and neighbors in path of fume. Contaminated absorbent material may pose the same hazard as the split product.

Methods for Containment
Packaging made of polyethylene and polypropylene are not suitable, they will become fragile and brittle in contact with liquid titanium tetrachloride.

Methods for cleaning up
Never soak up spilled or leaked acids and bases with sawdust, wood chips or similar materials.

Prevention of secondary hazards
Clean contaminated objects and areas thoroughly observing environmental regulations.

7. HANDLING AND STORAGE

Precautions for safe handling
Plan first aid action before beginning work with this product. Transfer and handle product only in closed systems. Do not allow contact with water. Use personal protective equipment as required. Avoid contact with skin, eyes or clothing. Wash contaminated clothing before reuse. Ensure adequate ventilation, especially in confined areas. Do not breathe dust/fume/gas/mist/vapors/spray.
Conditions for safe storage, including any incompatibilities

Storage Conditions
Keep container tightly closed in a dry and well-ventilated place. Keep/store only in original container. Keep under nitrogen blanket. Keep in a dry place. Do not allow into any sewer, on the ground or into any body of water. Use vapor collection at package opening or when there is potential for inhalation. Consider using smoke or hydrogen chloride detectors for leak warning. Store on retention (retention area of sufficient capacity, having impermeable soil). Avoid collecting products other than titanium tetrachloride in the retention pit. For fixed storage tanks, tank inerting with a very dry and neutral gas (eg nitrogen or argon) is recommended. Packaging made of polyethylene and polypropylene are not suitable, they will become fragile and brittle in contact with liquid titanium tetrachloride. Store far from incompatible materials and tanks, packages and containers containing flammable, or combustible materials. Do not store near incompatible materials (see Section 10). If properly stored, handled, permanently kept in highly tight and strongly dry conditions and protected against day-light, against contact with ambient air and moist products and against too warm ambient temperature, our material “titanium tetrachloride” has a shelf-life of twelve (12) months. We recommend not to exceed 12 months storage time in above described conditions even if it may not significantly affect product quality.

Packaging materials
Corrosive to metal. Packaging made of polyethylene and polypropylene are not suitable, they will become fragile and brittle in contact with liquid titanium tetrachloride.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure guidelines
Ensure operatives are trained to minimize exposures.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH</th>
<th>Alberta OEL</th>
<th>British Columbia OEL</th>
<th>Ontario TWA</th>
<th>Quebec OEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Titanium tetrachloride 7550-45-0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Hydrogen chloride 7647-01-0</td>
<td>Ceiling: 2 ppm (vacated) Ceiling: 5 ppm (vacated) Ceiling: 7 mg/m³ Ceiling: 5 ppm Ceiling: 7 mg/m³</td>
<td>IDLH: 50 ppm Ceiling: 5 ppm Ceiling: 7 mg/m³ Ceiling: 2 ppm Ceiling: 3 mg/m³</td>
<td>Ceiling: 2 ppm Ceiling: 2 ppm CEV: 2 ppm Ceiling: 5 ppm Ceiling: 7.5 mg/m³</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Legend
NIOSH Immediately Dangerous to Life or Health

Appropriate engineering controls

Engineering controls
Collect the vapors at point of emission and direct them to a gas neutralization and washing station. Ensure adequate ventilation, especially in confined areas Atmosphere checks at regular intervals Eyewash stations Showers Clean and dry wiping cloths

Individual protection measures, such as personal protective equipment

Eye/face Protection
Avoid contact with eyes. Tight sealing safety goggles. Face protection shield. Use eye protection according to EN 166, designed to protect against liquid splashes. Full facial mask combined with respiratory protection for gases, mists and acidic.

Skin and Body Protection
Wear protective Neoprene™ gloves. Ensure that the breakthrough time of the glove material is not exceeded. Refer to glove supplier for information on breakthrough time for specific gloves. Wear chemical resistant clothing such as gloves, apron, boots or whole bodysuits made from neoprene, as appropriate. For normal work, acid-resistant safety
shoes with high tops and clothing that covers the whole body. Materials: neoprene, teflon, nitrile gum, viton, PVC, Tychem®BR, Tychem®LV, Tychem®TK, Reflector®, CPF®, Responder®, Responder Plus®, Durables®1.

**Respiratory protection**
Do not breathe gas/fumes/vapor/spray. Always wear a self-contained breathing apparatus or full-face airline respirator when using this chemical. Ensure adequate ventilation, especially in confined areas.

**General hygiene considerations**
Do not eat, drink or smoke when using this product. Take off all contaminated clothing and wash it before reuse. Contaminated work clothing should not be allowed out of the workplace. Keep working clothes separately. Regular cleaning of equipment, work area and clothing is recommended. Handle in accordance with good industrial hygiene and safety practice.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

**Information on basic physical and chemical properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks • Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>Liquid Fumes in contact with air.</td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td>pungent</td>
<td></td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No information available</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks • Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>-24.1 °C</td>
<td>freezing point / freezing range</td>
</tr>
<tr>
<td>Boiling point / boiling range</td>
<td>136 °C</td>
<td>@ 101.3 kPa</td>
</tr>
<tr>
<td>Flash Point</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>Flammability Limit in Air</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>Upper flammability limit:</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Lower flammability limit:</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>0.36 kPa @ 0°C ; 1.24 kPa @ 20°C ; 5.62 kPa @ 50°C ; 36.57kPa @ 100°C</td>
<td>No data available</td>
</tr>
<tr>
<td>Water solubility</td>
<td>Reacts violently with water</td>
<td></td>
</tr>
<tr>
<td>Solubility in other solvents</td>
<td>soluble in: aliphatics (ex. hexane, heptane, octane)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>chlorinated aliphatics (ex. chlorohexane, chloroheptane, chlorooctane)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reacts immediately with: alcohols, tetrahydrofuran (and methylated tetrahydrofuran), aldehydes, organic acids to create exothermic and violent reactions</td>
<td></td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Kinematic viscosity</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Dynamic viscosity</td>
<td>0.82 mPa-s</td>
<td>@ 20 °C</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not an explosive</td>
<td></td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>None known</td>
<td></td>
</tr>
<tr>
<td>Softening point</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Molecular weight</td>
<td>189.7 g/mol</td>
<td></td>
</tr>
<tr>
<td>VOC content (%)</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Density</td>
<td>1.728 g/cm3 @20°C</td>
<td></td>
</tr>
</tbody>
</table>
10. STABILITY AND REACTIVITY

Reactivity
Reacts violently with water. Decomposes in contact with water. (Irrespective of the physical state of the water (vapor, liquid, solid) and aqueous solutions.).

Stability
Stable under normal conditions.

Possibility of hazardous reactions
alcohols, Aldehydes, Epoxies, fluorinated compounds, Incompatible Materials, organic acids, peroxides, potassium, potassium fluoride, reactive metals, Reacts with many compounds, Reacts violently with water, tetrahydrofuran, urea

Hazardous polymerization
Hazardous polymerization does not occur

Conditions to Avoid
Avoid wet and humid conditions. Keep from any possible contact with water.

Incompatible Materials
Alcohols, Butyl-rubber, compounds, air or organic solvents containing traces of water/moisture, Epoxies, hydrofluoric acid, Hydrogen fluoride, peroxides, potassium, potassium fluoride, Polyethylene, polypropylene, reactive metals, tetrahydrofuran, methylated tetrahydrofuran, urea, Water, NOTE: This list is not exhaustive

Hazardous decomposition products
Thermal decomposition can lead to release of irritating and toxic gases and vapors

Hydrogen chloride

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Inhalation
Fatal if inhaled. May cause pulmonary edema. (delayed).

Eye Contact
Corrosive to the eyes and may cause severe damage including blindness. Risk of serious damage to eyes.

Skin contact
Corrosive. Harmful in contact with skin. Causes severe burns.

Ingestion
Ingestion causes burns of the upper digestive and respiratory tracts.

Component Information

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Titanium tetrachloride</td>
<td>No reliable data</td>
<td>3160 mg/kg (Rabbit)</td>
<td>460 mg/m³ (Rat, Dust and Mists, 4 h)</td>
</tr>
</tbody>
</table>

Information on toxicological effects

Symptoms
Fatal if inhaled.

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

Skin corrosion/irritation
Causes severe burns.

Serious eye damage/eye irritation
Risk of serious damage to eyes.

Sensitization
No sensitization responses were observed.

Germ Cell Mutagenicity
None known.

Carcinogenicity
Not carcinogenic.
Titanium Tetrachloride

Reproductive Toxicity
It is not possible to assess the developmental or reproductive effects in humans as no data is available and only limited and inconclusive data is available in animals.

Developmental Toxicity
No information available.

Teratogenicity
No information available.

STOT - single exposure
Target Organs: Respiratory System

STOT - repeated exposure
No information available

Aspiration Hazard
No information available.

12. ECOLOGICAL INFORMATION

Marine pollutant
No

Ecotoxicity
Not classified for acute. Not classified chronic.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Algae/aquatic plants</th>
<th>Fish</th>
<th>Crustacea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Titanium tetrachloride</td>
<td>EC50 Growth rate (Fresh water algae: Scenedesmus subspicatus)/72 hours: 8.5 mg/l</td>
<td>LC50 (Trout)/24h: 10 mg/l (Bluegill sunfish)/96h: pH 3.0-3.5 (Shrimp)/48h: 100-330 ppm</td>
<td>LC50 (Leuciscus idus): 862 mg/l (1N ground)</td>
</tr>
<tr>
<td>7550-45-0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Persistence and degradability
Decomposes in contact with water. (Hydrochloric acid). Being highly reactive, material is not persistent in the environment.

Bioaccumulation
Being highly reactive, material is not persistent in the environment.

Other adverse effects
No information available

Ozone
Not applicable

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal of wastes
With vigorous agitation, slowly pour small quantities (< 0.005 L) of the non recyclable product into a large volume of water or into a solution of caustic soda, while thoroughly and completely collecting all the acid vapors formed and neutralizing them. CAUTION: This reaction is violent. Refer to manufacturer/supplier for information on recovery/recycling. Do not empty into drains; dispose of this material and its container in a safe way. This material, as supplied, is a hazardous waste according to federal regulations (40 CFR 261). Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated packaging
Consult the manufacturer or the supplier of this product. Improper disposal or reuse of this container may be dangerous and illegal.

14. TRANSPORT INFORMATION

DOT
UN/ID no UN1838
Proper Shipping Name Titanium Tetrachloride
Hazard Class 6.1
Subsidiary class 8
Titanium Tetrachloride

Reportable Quantity (RQ)

Forbidden for cargo and passenger air and rail

Special Provisions

[DOT-2]: This material is poisonous by inhalation (see section 171.8 of this subchapter) in Hazard Zone B (see section 173.116(a) or section 173.133(a) of this subchapter), and must be described as an inhalation hazard under the provisions of this subchapter.

Marine pollutant

No

TDG

UN/ID no

UN1838

Proper Shipping Name

Titanium Tetrachloride

Hazard Class

6.1

Subsidiary class

8

Packing group

I

Special Provisions

[TDG - 4]: The dangerous goods may be handled, offered for transport, or transported in a Class 105, 112, 114, or 120 fusion-welded tank car or a Class 106 or 110 ton container.

[TDG - 15]: The ton container must not be equipped with pressure-relief devices, and the openings for pressure-relief devices must be plugged or blank flanged.

[TDG - 17]: The tank must not be equipped with bottom outlets.

[TDG - 19]: Each container except a tank car or a ton container must be insulated with an insulating material so that the overall thermal conductance at 15.6°C (60°F) is equal to or less than 1.53 kJ/h m² °C (0.075 Btu/h ft² °F). Insulating materials must not promote corrosion of steel when wet.

[TDG - 44]: The tank car must conform to the applicable requirements of clause 10.5.1.

[TDG - 73]: This dangerous goods is toxic by inhalation in Hazard Zone B.
destination, as appropriate.
In each case, a copy of the document(s) of approval, showing the quantity limitations and the packing requirements, must accompany the consignment.

**IMDG**
- UN/ID no: UN1838
- Proper Shipping Name: Titanium Tetrachloride
- Hazard Class: 6.1
- Subsidiary hazard class: 8
- Packing group: I
- EmS-No: F-A, S-B
- Special Provisions: [IMDG - 354]: This substance is toxic by inhalation
- Marine pollutant: No

---

### 15. REGULATORY INFORMATION

#### International Inventories
- **TSCA**: Complies
- **DSL**: Complies
- **EINECS/ELINCS**: Complies
- **ENCS**: Complies
- **IECS**: Complies
- **KECL**: Complies
- **PICCS**: Complies
- **AICS**: Complies
- **NZIoC**: Complies
- **TCSI**: Complies

**Legend:**
- TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
- DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
- EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
- ENCS - Japan Existing and New Chemical Substances
- IECSC - China Inventory of Existing Chemical Substances
- KECL - Korean Existing and Evaluated Chemical Substances
- PICCS - Philippines Inventory of Chemicals and Chemical Substances
- AICS - Australian Inventory of Chemical Substances
- NZIoC - New Zealand Inventory of Chemicals
- TCSI - Taiwan Chemical Substance Inventory

#### US Federal Regulations

**SARA 313**
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>SARA 313 - Threshold Values %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Titanium tetrachloride - 7550-45-0</td>
<td>1.0</td>
</tr>
</tbody>
</table>

**SARA 311/312 Hazard Categories**
- Acute Health Hazard: Yes
- Chronic Health Hazard: No
- Fire Hazard: No
- Sudden release of pressure hazard: No
- Reactive Hazard: Yes

#### CWA (Clean Water Act)
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

#### CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)
Titanium Tetrachloride

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Hazardous Substances RQs</th>
<th>CERCLA/SARA RQ</th>
<th>Reportable Quantity (RQ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Titanium tetrachloride 7550-45-0</td>
<td>1000 lb</td>
<td>1000 lb</td>
<td>RQ 1000 lb final RQ RQ 454 kg final RQ</td>
</tr>
</tbody>
</table>

**US State Regulations**

**California Proposition 65**
This product does not contain any Proposition 65 chemicals

**U.S. State Right-to-Know Regulations**
This product may contain substances regulated by state right-to-know regulations.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>New Jersey</th>
<th>Massachusetts</th>
<th>Pennsylvania</th>
</tr>
</thead>
<tbody>
<tr>
<td>Titanium tetrachloride 7550-45-0</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

**16. OTHER INFORMATION**

**NFPA**
Health Hazards 3
Flammability 0
Reactivity 2

**HMIS**
Health Hazards 3
Flammability 0
Physical Hazards 2

Prepared by Product Stewardship Department

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Other Information This product is intended for industrial use. This product is not intended for consumption, cosmetic, pharmaceutical or medical end use. INEOS will not knowingly sell product for use into these applications

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End of Safety Data Sheet