SAFETY DATA SHEET

INEOS | Pigments

Titanium Tetrachloride

Section 1. Identification

GHS product identifier : Titanium Tetrachloride

Product code : Not available.

Chemical name : titanium tetrachloride

Other means of identification : Not available.

Product type : Liquid.

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

Product use : Chemical intermediate.
Production of titanium dioxide.
production of titanium metal components.
polyolefins catalyst.
manufacture of titanium metal.
Surface Treatment.

Area of application : Industrial applications.

Supplier's details : INEOS Pigments USA Inc.
955 Yard Street, Suite 400,
Grandview Heights OH
43212 USA

Telephone no.: +1 800-638-3234

e-mail address of person responsible for this SDS : regulatory.pigments@ineos.com

Emergency telephone number (with hours of operation) : +1 703-527-3887 (US)
+1 800-424-9300 (International) (24 hours)

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture :

H330	ACUTE TOXICITY (inhalation) - Category 1
H314	SKIN CORROSION - Category 1B
H318	SERIOUS EYE DAMAGE - Category 1

GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : H314 - Causes severe skin burns and eye damage.
H330 - Fatal if inhaled.

Section 2. Hazards identification

Precautionary statements

Prevention : P280 - Wear protective gloves, protective clothing and eye or face protection.
P284 - Wear respiratory protection.
P271 - Use only outdoors or in a well-ventilated area.
P260 - Do not breathe vapor or mist.
P264 - Wash thoroughly after handling.

Response : P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P301 + P330 + P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting..
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P310 - Immediately call a POISON CENTER or doctor.
P363 - Wash contaminated clothing before reuse.
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Storage : P403 + P233 - Store in a well-ventilated place. Keep container tightly closed.
P405 - Store locked up.

Disposal : P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazards not otherwise classified : None known.

Hazards identified when used : No known significant effects or critical hazards.

Section 3. Composition/information on ingredients

Substance/mixture : Substance

Chemical name : titanium tetrachloride

Other means of identification : Not available.

Ingredient name	Synonyms	%	Identifiers
titanium tetrachloride	-	100	CAS: 7550-45-0

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. Wipe off excess liquid before water is applied, unless this causes exposure to be unduly prolonged.

Section 4. First aid measures

Inhalation : Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Get medical attention immediately. Call a poison center or physician. Wash contaminated skin with soap and water. Remove contaminated clothing and shoes. Wipe off excess liquid before water is applied, unless this causes exposure to be unduly prolonged. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Causes serious eye damage.

Inhalation : Exposure to low concentrations may result in a sore throat, coughing and a tightness of the chest. More severe exposure may lead to a choking sensation and difficulty in breathing. Exposure to high concentrations can be fatal.

Skin contact : Causes severe burns.

Ingestion : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
pain
watering
redness

Inhalation : Sore throat, coughing, tightness of the chest, breathing difficulty or shortness of breath, choking sensation.

Skin contact : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur

Ingestion : Adverse symptoms may include the following:
stomach pains
severe burning

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Section 4. First aid measures

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Foam, dry chemical powder, CO_2. Dry sand or other suitable absorbent.

Unsuitable extinguishing media : Do not use water.

Specific hazards arising from the chemical : Substance will react with water 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 present a high risk of fire/explosion. In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
Hydrogen chloride, titanium dioxide.
Thermal decomposition can lead to release of irritating gases and vapors.

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Remark : Not considered to be a product presenting a risk of explosion.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Avoid unnecessary personnel and equipment traffic in the spill area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment. keep upwind of spill / leak.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Section 6. Accidental release measures

Large spill : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Dike the spilled material, where this is possible. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Do not breathe dust or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Wash hands thoroughly after handling. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
titanium tetrachloride	**ACGIH TLV (United States, 1/2025)** A4. C: 0.5 ppm (as HCl). **OARS WEEL (United States, 9/2024)** TWA 8 hours: 0.5 mg/m³.

Biological exposure indices

None known.

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental exposure controls : Not applicable.

Individual protection measures

Hygiene measures : Wash hands thoroughly after handling. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Section 8. Exposure controls/personal protection

Eye/face protection : Tightly-fitting goggles, Face shield.

Skin protection

Hand protection : Use chemical-resistant, impervious gloves.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Recommended: self-contained breathing apparatus (SCBA). If inhalation hazards exist, a full-face respirator may be required instead.

Section 9. Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

Physical state : Liquid. [Clear. Fumes in contact with air.]

Color : Yellow.

Odor : Pungent.

Odor threshold : Not available.

pH : Not applicable.

Melting point/freezing point : -24.1°C (-11.4°F)

Boiling point or initial boiling point and boiling range : 136.4°C (277.5°F)

Flash point : Not available.

Evaporation rate : Not available.

Flammability : Not available.

Lower and upper explosion limit/flammability limit : Not available.

Vapor pressure : 0.36 kPa (2.700222 mm Hg) [0°C (32°F)]

Relative vapor density : 6.5 [Air = 1]

Relative density : 1.728

Density : 1.73 g/cm³ [20°C (68°F)]

Solubility(ies) :

Media	Result
water	Not soluble

Solubility in water : <0.000005 g/l

Miscible with water : No.

Partition coefficient: n-octanol/water : Not available.

Auto-ignition temperature : Not available.

Decomposition temperature : Not available.

SADT : Not available.

United States

Section 9. Physical and chemical properties

Viscosity : Dynamic (room temperature): 0.82 mPa·s (0.82 cP)
Kinematic (room temperature): 0.4624 mm^2/s (0.4624 cSt)
Kinematic (40°C (104°F)): Not available.

Molecular weight : 189.68 g/mole

Particle characteristics

Median particle size : Not applicable.

Other information

Physical/chemical properties comments : No additional information.

Section 10. Stability and reactivity

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

Chemical stability : The product is stable under normal conditions.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.
Under normal conditions of storage and use, hazardous polymerization will not occur.

Conditions to avoid : Avoid contact with water or humidity. Keep away from 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.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Hydrogen chloride
Titanium oxides

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result
titanium tetrachloride	**Rabbit - Dermal - LD50** 3160 mg/kg **Rat - Inhalation - LC50 Vapor** 460 mg/m^3 [4 hours]

Conclusion/Summary [Product] : Fatal if inhaled.

Skin corrosion/irritation

Conclusion/Summary [Product] : Causes Severe Skin Burns.

Section 11. Toxicological information

Serious eye damage/eye irritation

Conclusion/Summary [Product] : Causes serious eye damage.

Respiratory corrosion/irritation

Conclusion/Summary [Product] : Not available.

Respiratory or skin sensitization

Skin

Conclusion/Summary [Product] : Not sensitizing.

Respiratory

Conclusion/Summary [Product] : Not classified for respiratory sensitization.

Germ cell mutagenicity

Conclusion/Summary [Product] : Not classified.

Carcinogenicity

Conclusion/Summary [Product] : Not classifiable as a human carcinogen.

Reproductive toxicity

Conclusion/Summary [Product] : Not considered to be toxic to the reproductive system.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure

Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

Potential acute health effects

Eye contact : Causes serious eye damage.

Section 11. Toxicological information

Inhalation : Exposure to low concentrations may result in a sore throat, coughing and a tightness of the chest. More severe exposure may lead to a choking sensation and difficulty in breathing. Exposure to high concentrations can be fatal.

Skin contact : Causes severe burns.

Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
pain
watering
redness

Inhalation : Sore throat, coughing, tightness of the chest, breathing difficulty or shortness of breath, choking sensation.

Skin contact : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur

Ingestion : Adverse symptoms may include the following:
stomach pains
severe burning

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Conclusion/Summary [Product] : Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Reproductive toxicity : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
titanium tetrachloride	N/A	3160	N/A	0.46	N/A

Section 11. Toxicological information

Section 12. Ecological information

Toxicity

Conclusion/Summary [Product] : Not classified.

Persistence and degradability

Conclusion/Summary [Product] : Not readily biodegradable.

Bioaccumulative potential

Not available.

Mobility in soil

Soil/Water partition coefficient : Not available.

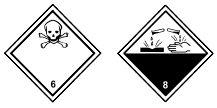
Other adverse effects

No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	DOT Classification	TDG Classification	Mexico Classification	IMDG	IATA
UN number	UN1838	UN1838	UN1838	UN1838	UN1838
UN proper shipping name	Titanium tetrachloride	TITANIUM TETRACHLORIDE	TETRACLORURO DE TITANIO	TITANIUM TETRACHLORIDE	Titanium tetrachloride
Transport hazard class(es)	6.1 (8) 	6.1 (8) 	6.1 (8) 	6.1 (8) 	6.1 (8) 

United States

Section 14. Transport information

Packing group	I	I	I	I	I
Environmental hazards	No.	No.	No.	No.	No.

Additional information

DOT Classification : Toxic - Inhalation hazard Zone B
Reportable quantity 1000 lbs / 454 kg [69.326 gal / 262.43 L]. Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.
Limited quantity No.
Packaging instruction Exceptions: None. Non-bulk: 227. Bulk: 244.
Quantity limitation Passenger aircraft/rail: Forbidden. Cargo aircraft: Forbidden.
Special provisions 2, B7, B9, B14, B32, B77, T20, TP2, TP13, TP38, TP45

TDG Classification : Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.26-2.36 (Class 6), 2.40-2.42 (Class 8).
Toxic - Inhalation hazard
Explosive Limit and Limited Quantity Index 0
Passenger Carrying Vessel Index Forbidden
Passenger Carrying Road or Rail Index Forbidden
Special provisions 23

Mexico Classification : **Special provisions** 354

IMDG : **Emergency schedules** F-A, S-B
Special provisions 354

IATA : **Quantity limitation** Passenger and Cargo Aircraft: Forbidden. Packaging instructions: Forbidden. Cargo Aircraft Only: Forbidden. Packaging instructions: Forbidden. Limited Quantities - Passenger Aircraft: Forbidden. Packaging instructions: Forbidden.
Special provisions A2

Special precautions for user : Not available.

Transport in bulk according to IMO instruments : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined
United States inventory (TSCA 8b): This material is active or exempted.
Clean Air Act (CAA) 112 regulated toxic substances: titanium tetrachloride

TSCA 12(b) - Chemical export notification

Not applicable.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

Section 15. Regulatory information

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

Name	%	EHS	SARA 302 TPQ (lbs)	SARA 302 TPQ (gallons)	SARA 304 RQ (lbs)	SARA 304 RQ (gallons)
titanium tetrachloride	100	Yes.	100	6.9	1000	69.3

SARA 304 RQ : 1000 lbs / 454 kg [69.3 gal / 262.4 L]

SARA 311/312

Classification : ACUTE TOXICITY (inhalation) - Category 1
SKIN CORROSION - Category 1B
SERIOUS EYE DAMAGE - Category 1

Composition/information on ingredients

Name	%	Classification
titanium tetrachloride	100	ACUTE TOXICITY (inhalation) - Category 1 SKIN CORROSION - Category 1B SERIOUS EYE DAMAGE - Category 1

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	titanium tetrachloride	7550-45-0	100
Supplier notification	titanium tetrachloride	7550-45-0	100

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Massachusetts : This material is listed.

New York : This material is listed.

New Jersey : This material is listed.

Pennsylvania : This material is listed.

California Prop. 65

This product does not require a Safe Harbor warning under California Prop. 65.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

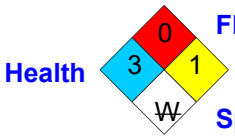
United States

Section 15. Regulatory information

Not listed.

Section 16. Other information

National Fire Protection Association (U.S.A.)



Procedure used to derive the classification

Classification	Justification
ACUTE TOXICITY (inhalation) - Category 1 SKIN CORROSION - Category 1B SERIOUS EYE DAMAGE - Category 1	On basis of test data Expert judgment Expert judgment

History

Date of issue/Date of revision : 01/02/2026

Date of previous issue : No previous validation

Version : 1

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
IMO = International Maritime Organization
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
N/A = Not available
SGG = Segregation Group
TDG = Transportation of Dangerous Goods
UN = United Nations

References : HCS (U.S.A.) - Hazard Communication Standard
International transport regulations

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.