

1. Identification

Product identifier	Titanium Tetrachloride	
Other means of identification		
CAS number	7550-45-0	
Recommended use	Production of titanium dioxide, production of titanium metal components, chemical intermediate, polyolefins catalyst, surface treatment, manufacture of titanium metal.	
Recommended restrictions	For use in industrial installations only.	
Manufacturer/Importer/Supplier/Distributor information		
Manufacturer/Supplier	INEOS Pigments USA Inc. 6752 Baymeadow Drive Glen Burnie, MD, USA 21060	
Telephone	+1 410-762-1000	
Fax	+1 410-229-4415	
Contact person	Product Responsibility Manager	
E-mail	regulatory.pigments@ineos.com	
Emergency telephone number	For Chemical Emergency ONLY, call CHEMTREC: +1 800-424-9300 (US) +1 703-527-3887 (International)	

2. Hazard(s) identification

Physical hazards	Not classified.	
Health hazards	Acute toxicity, inhalation	Category 1
	Skin corrosion/irritation	Category 1B
	Serious eye damage/eye irritation	Category 1
OSHA defined hazards	Not classified.	

Label elements



Signal word	Danger	
Hazard statement	Causes severe skin burns and eye damage. Fatal if inhaled.	
Precautionary statement		
Prevention	Do not breathe mist/vapors. Wash 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. Specific treatment is urgent (see this label). Wash contaminated clothing before reuse.	
Storage	Store in a well-ventilated place. Keep container tightly closed. Store locked up.	
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.	
Hazard(s) not otherwise classified (HNOC)	None known.	

Supplemental information None.

3. Composition/information on ingredients

Substances

Chemical name	Common name and synonyms	CAS number	%
Titanium Tetrachloride		7550-45-0	100

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician or poison control center immediately.
Skin contact	Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician or poison control center immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.
Ingestion	Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
Most important symptoms/effects, acute and delayed	Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

5. Fire-fighting measures

Suitable extinguishing media	Carbon dioxide (CO2). Dry chemical powder. Dry sand. Foam.
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 if heated a pressure increase will occur and the container may burst.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	Move containers from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist/vapors. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.
Environmental precautions	Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling Do not breathe mist/vapors. Do not get in eyes, on skin, or on clothing. Avoid prolonged exposure. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities Store locked up. Store in tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. Workplace Environmental Exposure Level (WEEL) Guides

Material	Type	Value
Titanium Tetrachloride (CAS 7550-45-0)	TWA	0.5 mg/m ³

Biological limit values No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear tight fitting goggles and face shield.

Skin protection

Hand protection Wear appropriate chemical resistant gloves.

Skin protection

Other Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.

Respiratory protection Self-contained breathing apparatus (SCBA) or full face airline respirator.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Physical state Liquid.

Form Liquid. Fumes in contact with air.

Color Clear yellow.

Odor Pungent.

Odor threshold Not available.

pH Not available.

Melting point/freezing point -11.38 °F (-24.1 °C)

Initial boiling point and boiling range 277.5 °F (136.4 °C)

Flash point Not available.

Evaporation rate Not available.

Flammability (solid, gas) Not applicable.

Upper/lower flammability or explosive limits

Flammability limit - lower (%) Not available.

Flammability limit - upper (%) Not available.

Explosive limit - lower (%) Not available.

Explosive limit - upper (%) Not available.

Vapor pressure 0.36 kPa (32°F (0°C)) (32 °F (0 °C), 68 °F (20 °C), 212 °F (100 °C), 68 °F (20 °C), 68 °F (20 °C), 71.6 °F (22 °C), 71.6 °F (22 °C), 122 °F (50 °C), 68 °F (20 °C))

1.24 kPa (68°F (20°C)) (32 °F (0 °C), 68 °F (20 °C), 212 °F (100 °C), 68 °F (20 °C), 68 °F (20 °C), 71.6 °F (22 °C), 71.6 °F (22 °C), 122 °F (50 °C), 68 °F (20 °C))
5.62 kPa (122°F (50°C)) (32 °F (0 °C), 68 °F (20 °C), 212 °F (100 °C), 68 °F (20 °C), 68 °F (20 °C), 71.6 °F (22 °C), 71.6 °F (22 °C), 122 °F (50 °C), 68 °F (20 °C))
36.57 kPa (212°F (100°C)) (32 °F (0 °C), 68 °F (20 °C), 212 °F (100 °C), 68 °F (20 °C), 68 °F (20 °C), 71.6 °F (22 °C), 71.6 °F (22 °C), 122 °F (50 °C), 68 °F (20 °C))

Vapor density	Not available.
Relative density	1.728
Solubility(ies)	
Solubility (water)	Reacts violently with water.
Solubility (solvents)	aliphatics, chlorinated aliphatics
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Density	1.73 g/cm ³ estimated
Dynamic viscosity	0.82 mPa.s (68 °F (20 °C))
Explosive properties	Not explosive.
Molecular formula	Cl ₄ -Ti
Molecular weight	189.68 g/mol
Oxidizing properties	Not oxidizing.

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	Material is stable under normal conditions.
Possibility of hazardous reactions	Alcohols, aldehydes, epoxies, fluorinated compounds, incompatible materials, organic acids, peroxides, potassium, reactive metals. Reacts violently with water, tetrahydrofuran, and urea.
Conditions to avoid	Avoid wet and humid conditions, keep away 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, and water.
Hazardous decomposition products	Hydrogen chloride. Titanium. Thermal decomposition can lead to the release of irritating, toxic gases and vapors.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Fatal if inhaled.
Skin contact	Causes severe skin burns.
Eye contact	Causes serious eye damage.
Ingestion	Causes digestive tract burns.

Symptoms related to the physical, chemical and toxicological characteristics	Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.
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Information on toxicological effects

Acute toxicity	Fatal if inhaled.
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Product	Species	Test Results
Titanium Tetrachloride (CAS 7550-45-0)		
Acute		
Dermal		
LD50	Rabbit	3160 mg/kg
Inhalation		
LC50	Rat	0.46 mg/l, 4 Hours
Skin corrosion/irritation	Causes skin burns.	
Serious eye damage/eye irritation	Causes serious eye damage.	
Respiratory or skin sensitization		
Respiratory sensitization	Not a respiratory sensitizer.	
Skin sensitization	This product is not expected to cause skin sensitization.	
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.	
Carcinogenicity	Not classifiable as to carcinogenicity to humans.	
IARC Monographs. Overall Evaluation of Carcinogenicity		
Not listed.		
NTP Report on Carcinogens		
Not listed.		
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)		
Not listed.		
Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.	
Specific target organ toxicity - single exposure	Not classified.	
Specific target organ toxicity - repeated exposure	Not classified.	
Aspiration hazard	Not an aspiration hazard.	
Chronic effects	Prolonged inhalation may be harmful.	
12. Ecological information		
Ecotoxicity	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.	
Persistence and degradability	No data is available on the degradability of this substance.	
Bioaccumulative potential	No data available.	
Mobility in soil	No data available.	
Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.	
13. Disposal considerations		
Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Incinerate the material under controlled conditions in an approved incinerator. Dispose of contents/container in accordance with local/regional/national/international regulations.	
Local disposal regulations	Dispose in accordance with all applicable regulations.	
Hazardous waste code	D002: Waste Corrosive material [pH <=2 or =>12.5, or corrosive to steel] The waste code should be assigned in discussion between the user, the producer and the waste disposal company.	
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).	
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.	

14. Transport information

DOT

UN number UN1838
UN proper shipping name Titanium tetrachloride
Transport hazard class(es)
Class 6.1(PGI, II)
Subsidiary risk 8
Label(s) 6.1, 8
Packing group I
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.
Special provisions 2, B7, B9, B14, B32, B77, T20, TP2, TP13, TP38, TP45
Packaging exceptions None
Packaging non bulk 227
Packaging bulk 244

IATA

UN number UN1838
UN proper shipping name Titanium tetrachloride
Transport hazard class(es)
Class 6.1(PGIII)
Subsidiary risk 8
Packing group Not available.
Environmental hazards No.
ERG Code 6C
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number UN1838
UN proper shipping name TITANIUM TETRACHLORIDE
Transport hazard class(es)
Class 6.1(PGI, II)
Subsidiary risk 8
Packing group I
Environmental hazards
Marine pollutant No.
EmS F-A, S-B
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not established.

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Titanium Tetrachloride (CAS 7550-45-0) Listed.

SARA 304 Emergency release notification

Titanium chloride (TiCl₄) (T-4)- (CAS 7550-45-0) 1000 LBS

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

Toxic Substances Control Act (TSCA) This substance is on the TSCA 8(b) inventory and is designated "active".

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Chemical name	CAS number	Reportable quantity (pounds)	Threshold planning quantity (pounds)	Threshold planning quantity, lower value (pounds)	Threshold planning quantity, upper value (pounds)
Titanium Tetrachloride	7550-45-0				

SARA 311/312 Hazardous chemical Yes

Classified hazard categories Acute toxicity (any route of exposure)
Skin corrosion or irritation
Serious eye damage or eye irritation

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Titanium Tetrachloride	7550-45-0	100

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Titanium Tetrachloride (CAS 7550-45-0)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Titanium Tetrachloride (CAS 7550-45-0)

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations

US. Massachusetts RTK - Substance List

Titanium Tetrachloride (CAS 7550-45-0)

US. New Jersey Worker and Community Right-to-Know Act

Titanium Tetrachloride (CAS 7550-45-0)

US. Pennsylvania Worker and Community Right-to-Know Law

Titanium Tetrachloride (CAS 7550-45-0)

US. Rhode Island RTK

Titanium Tetrachloride (CAS 7550-45-0)

California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins. For more information go to www.P65Warnings.ca.gov.

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

Titanium Tetrachloride (CAS 7550-45-0)

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 29-September-2020
Revision date -
Version # 01

List of abbreviations

LC50: Lethal Concentration, 50%.

LD50: Lethal Dose, 50%.

TWA: Time Weighted Average.

Disclaimer

INEOS Pigments cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.

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.