According to the REACH Regulation(EC) 1907/2006 amended by Regulation (EU)2020/878

Review date:01/01/2024 Version:1.0



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

1.1Product identifier

Product form Substance
Trade name Titanium Dioxide
CAS No 13463-67-7

REACH registration No 01-2119489379-17-0278

Landscape®, Titanium Pigment. Grades R-298, R-248, R-248+, R-249, R-228, R-268, R-288



PANZHIHUA®, Titanium Pigment. Grades CR-350, CR-340, CR-380



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

1.2.1 Relevant identified uses

Use of the substance / mixture: Pigments, used in coatings, plastics, papers, rubbers and inks industries.

1.2.2. Uses advised against

Restrictions on use: No information available.

1.3 Details of the supplier of the safety data sheet

Manufacturer Chongqing Titanium Industry Co., Ltd. of Pangang Group

Address No.2, Zitong Road, Maliuzui Town, Banan District, Chongqing, China

E-mail tio2@vtird.com

1.4 Emergency Telephone number

1.4.1 Sulphate product

Emergency number : 023-62551924

1.4.2 Chloride product

Emergency number : 0812-6210914

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

2.1.1 Classification according to Regulation (EC) No. 1272/2008 [CLP]

Full text of H- and EUH-statements : see section 16

2.2 Other hazards

PBT: not relevant – no registration required vPvB: not relevant – no registration required

The substance is not included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605.

SECTION 3: Composition / information on ingredients

3.1 Substances

According to the REACH Regulation(EC) 1907/2006 amended by Regulation (EU)2020/878

Review date:01/01/2024 Version:1.0



Chemical name	CAS-No.	Content %							
		R-298	R-248	R-249	R-228	CR-350	CR-340	CR-380	
Titanium dioxide	13463-67-7	93.0-96.0	95.5-97.5	96.5-98.0	95.5-97.0	93.0-95.0	96.0-97.5	92.0-95.0	
Aluminium trioxide	1344-28-1	1.55-2.80	0.8-1.4	0.5-0.7	1.8-2.4	2.5-3.5	0.8-1.1	2.0-3.0	
Zirconium dioxide	1314-23-4	0.35-0.45	0.4-0.6	None	0.1	0.35-0.45	None	None	
Silicon dioxide	7631-86-9	0.1-0.3	0.1-0.3	0.3-0.7	0.1-0.4	0.1-0.3	0.2-0.4	2.5-3.5	
Trimethylol propane (TMP)	77-99-6	0.1-0.3	None	None	0.6-0.8	0.1-0.3	None	0-1.0	
Others		1.9-3.15	1.2-2.2	1.2-2.1	0.4-0.8	1.95-2.45	1.5-2.5	0.5	

3.2 Mixtures

Not applicable.

SECTION 4: First aid measures

4.1 Description of first aid measures

First-aid measures general: IF exposed or concerned: Get medical advice/attention.

First-aid measures after inhalation: Remove person to fresh air and keep comfortable for breathing. If symptoms persist call a doctor.

First-aid measures after skin contact: Wash skin thoroughly with mild soap and water.

First-aid measures after eye contact: Rinse eyes with water as a precaution. If eye irritation persists: Get medical advice or attention.

First-aid measures after ingestion: Call a poison center or a doctor if you feel unwell.

4.2 Most important symptoms and effects, both acute and delayed

If inhalation without dust cover: Caused lung disease.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media Water spray. Dry powder. Foam. Use extinguishing media appropriate for surrounding fire.

Unsuitable extinguishing media No information available.

5.2 Special hazards arising from the substance or mixture

Hazardous decomposition products in case of fire : Toxic fumes may be released.

5.3 Advice for firefighters

Protection during firefighting: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

According to the REACH Regulation(EC) 1907/2006 amended by Regulation (EU)2020/878

Review date:01/01/2024 Version:1.0



6.1.1 For non-emergency personnel

Emergency procedures: Ventilate spillage area. Avoid dust formation. Wear personal protective equipment.

6.1.2. For emergency Responders

Titanium dioxide (13463-67-7)

EU - Indicative Occupational Exposure Limit (IOEL)

Local name Titanium dioxide

Remark (Ongoing)

Regulatory reference SCOEL Recommendations

Austria - Occupational Exposure Limits

MAK (OEL TWA) 5 mg/m³ (alveolar dust, respirable fraction)

MAK (OEL STEL) 10 mg/m³ (alveolar dust, respirable fraction)

Belgium - Occupational Exposure Limits

OEL TWA 10 mg/m³

Protective equipment: Do not attempt to take action without suitable protective equipment. For further information refer to

section 8: "Exposure controls / personal protection".

6.2 Environmental precautions

Avoid release to the environment. Avoid the spillage or runoff entering drains, sewers or watercourses.

Precautions for safe handling Obtain special instructions before use. Do not handle until all safety precautions have been

read and understood. Wear personal protective equipment. Avoid dust formation. Use good personal hygiene practices. Provide local exhaust or general room ventilation. Avoid static

electricity discharges.

Hygiene measures Do not eat, drink or smoke when using this product. Always wash hands after handling the

product.

6.3 Methods and material for containment and cleaning up

Storage conditions Store locked up. Store in a well-ventilated place. Keep cool. Protect from moisture.

Packaging materials Plastic. Paper.

Method for cleaning up Mechanically recover the product. Sweep up or vacuum up the product. Notify authorities if

product enters sewers or public waters. Avoid dust formation.

Other information Dispose of materials or solid residues at an authorized site. If spilled, may cause the floor to

be slippery.

6.4 Reference to other sections

For further information refer to section 13

SECTION 7: Handling and storage

7.1 Precautions for safe handling

7.2 Conditions for safe storage, including any incompatibilities

7.3 Specific end use(s)

No additional information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

8.1.1 National occupational exposure and biological limit values

According to the REACH Regulation(EC) 1907/2006 amended by Regulation (EU)2020/878

Review date:01/01/2024 Version:1.0



Bulgaria - Occupational Exposure Limits

OEL TWA 10 mg/m³ (respirable dust)

Croatia - Occupational Exposure Limits

GVI (OEL TWA) [1] 10 mg/m³ (total dust), 4 mg/m³ (respirable dust)

Denmark - Occupational Exposure Limits

OEL TWA [1] 6 mg/m³

Estonia - Occupational Exposure Limits

OEL TWA 5 mg/m³

France - Occupational Exposure Limits

VME (OEL TWA) 10 mg/m³

Greece - Occupational Exposure Limits

OEL TWA 10 mg/m³ (inhalable fraction), 5 mg/m³ (respirable fraction)

Ireland - Occupational Exposure Limits

OEL TWA [1] 10 mg/m³ (total inhalable dust), 4 mg/m³ (respirable dust)
OEL STEL 30 mg/m³ (calculated-respirable dust), 12 mg/m³ (calculated)

Latvia - Occupational Exposure Limits

OEL TWA 10 mg/m³

Lithuania - Occupational Exposure Limits

IPRV (OEL TWA) 5 mg/m³

Poland - Occupational Exposure Limits

NDS (OEL TWA) 10 mg/m³ (the concentration of the respirable Crystalline silica fraction is

determined simultaneously-inhalable fraction)

Portugal - Occupational Exposure Limits

OEL TWA 10 mg/m³

OEL chemical category A4 - Not Classifiable as a Human Carcinogen

Romania - Occupational Exposure Limits

 OEL TWA
 10 mg/m³

 OEL STEL
 15 mg/m³

Slovakia - Occupational Exposure Limits

NPHV (OEL TWA) [1] 5 mg/m³

Spain - Occupational Exposure Limits

VLA-ED (OEL TWA) [1] 10 mg/m³

Sweden - Occupational Exposure Limits

NGV (OEL TWA) 5 mg/m³ (total dust)

United Kingdom - Occupational Exposure Limits

WEL TWA (OEL TWA) [1] 10 mg/m³ (total inhalable), 4 mg/m³ (respirable)

WEL STEL (OEL STEL) 30 mg/m³ (calculated-total inhalable), 12 mg/m³ (calculated-respirable)

Norway - Occupational Exposure Limits

Grenseverdi (OEL TWA) [1] 5 mg/m³

Korttidsverdi (OEL STEL) 10 mg/m³ (value calculated)

Switzerland - Occupational Exposure Limits

MAK (OEL TWA) [1] 3 mg/m³ (respirable dust)

USA - ACGIH - Occupational Exposure Limits

ACGIH OEL TWA 10 mg/m³

ACGIH chemical category Not Classifiable as a Human Carcinogen

8.1.2 Recommended monitoring procedures

According to the REACH Regulation(EC) 1907/2006 amended by Regulation (EU)2020/878

Review date:01/01/2024 Version:1.0



No additional information available

8.1.3 Air contaminants formed

No additional information available

8.1.4 DNEL and PNEC

Titanium Dioxide (13463-67-7)

Long-term - local effects, inhalation 1.25 mg/m³

DNEL/DMEL (General population)

Long-term - local effects, inhalation 210 µg/m³

8.1.5 Control banding

No additional information available

8.2 Exposure controls

8.2.1 Appropriate engineering controls

Appropriate engineering controls: Ensure good ventilation of the work station.

8.2.2 Personal protection equipment

8.2.3 Environmental exposure controls

Environmental exposure controls: Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state Solid
Colour White

Appearance White solid.

Odour Odourless

Odour threshold Not available

Melting point 1560 °C (Melting point of anatase)

1843 °C (Melting point of rutile) 1825 °C(Melting point of brookite)

Freezing point Not applicable.

Boiling point 3000 °C

Eye and face protection Safety glasses.

Skin and body protection Wear suitable protective clothing.

Hand protection Protective gloves, Prolonged exposure should be avoided by wearing

suitable impervious protective gloves.

Respiratory protection In case of insufficient ventilation, wear suitable respiratory equipment. Dust

Respirator.

Thermal hazards No additional information available.

Flammability

Explosive properties

Non explosive.

Oxidising properties

Non oxidizing.

Explosive limits

Not applicable.

Lower explosive limit (LEL)

Upper explosive limit (UEL)

Flash point

Not applicable.

Not applicable.

Not applicable.

According to the REACH Regulation(EC) 1907/2006 amended by Regulation (EU)2020/878



Review date:01/01/2024 Version:1.0

Auto-ignition temperature

Decomposition temperature

PH

To in water (1: 10)

PH solution

Not available

Viscosity, kinematic

Not applicable.

Solubility Water: <1 μ g/L (20 $^{\circ}$ C)

Partition coefficient n-octanol/water (Log Kow) Not available

Vapour pressure Not available

Vapour pressure at 50 °C Not available

Density 3.9 g/cm³(anatase)

4. 17 g/cm³(brookite) 4.26 g/cm³(rutile)

Relative density Not available

Relative vapour density at 20 °C Not available

Particle size Not available

Particle size distribution Not available

Particle shape Not available

Particle aspect ratio Not available

Particle aggregation state Not available

Particle agglomeration state Not available

Particle specific surface area Not available

Particle dustiness Not available

9.2 Other information

9.2.1 information with regard to physical hazard classes

No additional information available.

9.2.2 Other safety characteristics

No additional information available.

SECTION10 Stability and reactivity

10.1 Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4 Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5 Incompatible materials

No information available.

According to the REACH Regulation(EC) 1907/2006 amended by Regulation (EU)2020/878

Review date:01/01/2024 Version:1.0



10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION11 Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity (oral): Not classified .

Acute toxicity (dermal):Not classified..

Acute toxicity (inhalation):Not classified.

Titanium dioxide (13463-67-7)

LD50 oral rat > 5000mg/kg bw

LD50 dermal Conduct of an acute dermal toxicity study is unjustified as inhalation of the substance is

considered as major route of exposure and physicochemical properties and dermal

absorption data of the substance do not suggest a significant rate of absorption through the

skin.

LC50 inhalation > 6.82mg/L (MMAD=1.55 μ m, GSD=1.70 μ m)

Titanium dioxide (13463-67-7)

IARC group 2B - Possibly carcinogenic to humans

Skin corrosion/irritation Not classified .Titanium dioxide has been tested in various in vivo skin and eye irritation

studies. All tests show a negative response, thus titanium dioxide does not require classification

either as skin or as skin irritant.

Serious eye

damage/irritation

Not classified .Titanium dioxide has been tested in various in vivo skin and eye irritation studies. All tests show a negative response, thus titanium dioxide does not require classification either as

skin or as eye irritant.

Respiratory or skin sensitisation

Not classified .Titanium dioxide has been tested in two different systems for skin sensitising properties. Both study types show a negative response, thus titanium dioxide does not require

classification as skin sensitiser. Titanium dioxide does not show respiratory sensitising properties

in animal studies or in exposure related observations in humans.

Germ cell mutagennicity Not classified .no adverse effect observed (negative)

Carcinogenicity No adverse effects were observed in rats and mice orally exposed up to a dose of 3500 mg/kg

bw/day over a period of 103 weeks in a carcinogenicity bioassay.

According to the REACH Regulation(EC) 1907/2006 amended by Regulation (EU)2020/878

Review date:01/01/2024 Version:1.0



Titanium dioxide (13463-67-7)

Reproductive toxicity Not classified.

Based on the weight of evidence from the available long-term toxicity/carcinogenicity studies in rodents and the relevant information on the toxicokinetic behaviour in rats it is concluded that TiO2 does not present a reproductive toxicity hazard.

Within the scope of the re-evaluation of titanium dioxide (E171) as a food additive by the European Food Safety Authority (EFSA) adopted on the 28th June 2016, the conduct of a "multigeneration or extended-one generation reproduction toxicity study according to the current OECD guidelines" was recommended. This study was requested in order to establish a health-based guidance value (ADI) for the food additive titanium dioxide (EFSA Journal 2016; 14(9):4545).

The experimental phase for an extended one generation reproductive toxicity study is currently ongoing (status June 2020). An interim report is already available, which is added as robust study summary. It is highlighted that the conclusions are still preliminary and that these will be finalised, once the final report becomes available.

STOT-single exposure

Not classified.

STOT-repeated

Not classified.

exposure

Titanium dioxide did not show any adverse effects in 90-day and 28-day oral repeated dose toxicity studies in rats with a NOAEL of 1000 and 24,000 mg/kg bw/day, respectively. No adverse effects were observed in rats and mice orally exposed up to a dose of 3500 mg/kg bw/day over a period of 103 weeks in a carcinogenicity bioassay. Titanium dioxide is not absorbed to any relevant extent through human skin, thus no toxic effects can be expected via the dermal route of exposure. Titanium dioxide showed adverse pulmonary effects in chronic inhalation studies only at

concentrations above the maximum tolerated dose (MTD).

Aspiration hazard

Not classified.

Viscosity, kinematic

Not applicable.

11.2 Information on other hazards

11.2.1Endocrine disrupting properties

Adverse health effects caused by endocrine disrupting properties

The substance is not included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605.

11.2.2 Other information

No information available.

SECTION 12: Ecological information

12.1 Toxicity

Ecology - general Micro-and nanosized TiO2 is not acutely and chronically toxic to aquatic organisms. Thus,

nano- and microsized TiO2 are not a classified or non-classified acute and chronic hazard to

aquatic organisms.

Hazardous to the aquatic environment, short-term

Not classified.

(acute)

Hazardous to the aquatic

environment, long-term

(chronic)

Not classified.

According to the REACH Regulation(EC) 1907/2006 amended by Regulation (EU)2020/878

Review date:01/01/2024 Version:1.0



Titanium dioxide (13463-67-7)

> 1000 mg/LLC50 fish

12.2 Persistence and degradability

Degradation/biodegradation testing is not relevant for metals and metal compounds that are not (bio)degradable, including titanium dioxide nano forms.

12.3. Bioaccumulative potential

Several laboratory studies of the bioaccumulation ofnanosizedTiO2 by arthropods, annelids, molluscs and fish exposed via food, sediment or the water point to a low bioaccumulation potential. However, the accumulation kinetics were not addressed in several studies and often it remains unknown if steady-state was reached. In sum, available data on bioaccumulation of nanosized-TiO2 in invertebrates and fish indicate that nanosized TiO2 does not appear to bioaccumulate or biomagnify. A similar low bioaccumulation potential may be assumed for microsized material based on common physico-chemical properties including the poor solubility.

12.4 Mobility in soil

Nano- and microsized TiO2 has a very low mobility under almost all environmental conditions and is primarily associated with particles or colloids. Distribution coefficients are derived from monitoring data of elemental Ti concentrations in water and corresponding sediments or suspended matter. The estimated partition coefficient for soil is based on a standardized soil adsorption test with nanosized TiO2.

12.5 Results of PBT and vPvB assessment

Titanium dioxide (13463-67-7)

This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII

This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

Component

Titanium dioxide (13463-67-7) PBT: not relevant - no registration required.

vPvB: not relevant – no registration required.

12.6 Endocrine disrupting properties

by endocrine disrupting properties.

Adverse effects on the environment caused The substance is not included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or

Commission Regulation (EU) 2018/605.

12.7 Other adverse effects

No additional information available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Waste treatment methods sorting instructions: Dispose of contents/container in accordance with licensed collector's.

SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID.

:

According to the REACH Regulation(EC) 1907/2006 amended by Regulation (EU)2020/878

Review date:01/01/2024 Version:1.0



ADR	IMDG	IATA	ADN	RID					
14.1 UN number or ID number									
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated					
14.2 UN proper ship	ping name								
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated					
14.3 Transport haza	rd class(es)								
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated					
14.4 Packing group									
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated					
14.5 Environmental hazards									
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated					
14.6 Special precaution for users									
Overland transport	Air transport	Inland waterway transport	Rail transport	Transport by sea					
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated					

14.7 Maritime transport in bulk according to IMO instruments

Not applicable.

SECTION 15: Regulatory information

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

15.1.1 EU-Regulations

No REACH Annex XVII restrictions

Titanium Dioxide is not on the REACH Candidate List

Titanium Dioxide is not on the REACH Annex XIV List

Titanium Dioxide is not subject to Regulation (EU) No 649/2012 of the European Parliament and of the Council of 4 july 2012 concerning the export and import of hazardous chemicals.

Titanium Dioxide is not subject to Regulation (EU) No 2019/ 1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants

Contains no substance subject to Regulation (EU) 2019/ 1148 of the European Parliament and of the Council of 20 June 2019 on the marketing and use of explosives precursors.

15.1.2 National regulations

Germany

Employment restrictions Observe restrictions according Act on the Protection of Working Mothers (MuSchG).

Observe restrictions according Act on the Protection of Young People in

Employment (JArbSchG).

Water hazard class (WGK) WGK nwg, Non-hazardous to water (Classification according to AwSV; ID No. 1345).

Hazardous Is not subject of the Hazardous Incident Ordinance (12. BlmSchV).

Incident Ordinance(12.BImSchV)

Netherlands

SZW-lijst van kankerverwekkende The substance is not listed.

According to the REACH Regulation(EC) 1907/2006 amended by Regulation (EU)2020/878



Review date:01/01/2024 Version:1.0

stoffen

SZW-lijst van reprotoxische stoffen

The substance is not listed

- Borstvoeding

SZW-lijst van reprotoxische stoffen

The substance is not listed

Vruchtbaarheid

SZW-lijst van reprotoxische stoffen The substance is not listed

Ontwikkeling

Denmark

Danish National Regulations Young people below the age of 18 years are not allowed to use the product.

Pregnant/breastfeeding women working with the product must not be in direct contact

with the product.

The requirements from the Danish Working Environment Authorities regarding work

with carcinogens must be followed during use and disposal.

Switzerland

Storage class (LK) LK 6. 1 - Toxic materials

15.2 Chemical safety assessment

A chemical safety assessment has been carried out.

SECTION 16: other information

Abbreviations and acronyms

ADN European Agreement concerning the International Carriage of Dangerous Goods by Inland

Waterways

ADR Agreement concerning the International Carriage of Dangerous Goods by Road

ATE Acute Toxicity Estimate

BCF Bioconcentration factor

BLV Biological limit value

BOD Biochemical oxygen demand (BOD)

COD Chemical oxygen demand (COD)

DMFI Derived Minimal Effect level

DNEL Derived-No Effect Level

EC-No. European Community number

EC50 Median effective concentration

EN European Standard

IATA International Air Transport Association

IMDG International Maritime Dangerous Goods

LC50 Median lethal concentration

LD50 Median lethal dose

LOAEL Lowest Observed Adverse Effect Level

NOAEC No-Observed Adverse Effect Concentration

NOAEL No-Observed Adverse Effect Level
NOEC No-Observed Effect Concentration

OECD Organisation for Economic Co-operation and Development

OEL Occupational Exposure Limit

PBT Persistent Bioaccumulative Toxic

According to the REACH Regulation(EC) 1907/2006 amended by Regulation (EU)2020/878



Review date:01/01/2024 Version:1.0

PNEC Predicted No-Effect Concentration

RID Regulations concerning the International Carriage of Dangerous Goods by Rail

SDS Safety Data Sheet

STP Sewage treatment plant

ThOD Theoretical oxygen demand (ThOD)

TLM Median Tolerance Limit

VOC Volatile Organic Compounds

CAS-No. Chemical Abstract Service number

N.O.S. Not Otherwise Specified

vPvB Very Persistent and Very Bioaccumulative

ED Endocrine disrupting properties

Training advice: Normal use of this product shall imply use in accordance with the instructions on the package.

Safety Data Sheet (SDS)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.