

Titanium Dioxide R-666 / R-668 / R-18

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

1.1 Product identifier

Substance name: Titanium Dioxide R-666 / Titanium Dioxide R-668 / Titanium Dioxide R-18
REACH Reg. No.: 01-2119489379-17-0044
Index No.: Not listed.
CAS No.: 1317-80-2
EC No.: 215-282-2

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

Identified uses: Powder coatings, used on plastic.
Uses advised against: No uses advised against.

1.3 Details of the supplier of the MSDS

Only Representative: REACH COMPLIANCE SERVICES LIMITED
Address: 306 The Capel Building, Mary's Abbey, Dublin 7, Ireland
E-mail: Info@reach24h.com

Manufacturer: Guangdong Huiyun Titanium Industry Corporation Limited
Address: Liudu Town, Yun'an County, Yunfu City, Guangdong Province, China

Distributor / Agent: Formula Chemicals Co., Ltd.
Address 1: 18F, No. 178, Dayi Road, Shulin District, New Taipei City, Taiwan
Address 2: 1219, No. 1839, Qixin Road, Minhang District, Shanghai, China
Address 3: 44 Chestnut Street, Ardsley, New York, USA

Section 2: Hazards identification

2.1 Classification of the substance or mixture

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

This product does not meet the criteria for classification in any hazard class according to Regulation (EC) No 1272/2008 on classification, labeling and packaging of substances and mixtures.

Classification according to Council Directive 67/548/EEC [DSD]

This product does not meet the criteria for classification in any hazard class according to Directive 67/548/EEC on classification, labeling and packaging of substances.

2.2 Label elements

Labeling according to Regulation (EC) No 1272/2008 [CLP]

No labeling information (such as hazard pictogram, signal word, hazard statement, precautionary statement) available. This product does not meet the criteria for classification in any hazard class according to Regulation (EC) No 1272/2008 on classification, labeling and packaging of substances and mixtures.

2.3 Other hazards

No information available

Section 3: Composition/information on ingredients

3.1 Substance information

Constituents:

Substance name	Molecular formula	CAS No.	EC No.	Classification according to CLP	Classification according to DSD	% (w/w)
Rutile (TiO ₂)	TiO ₂	13463-67-7	215-282-2	No classification.	No classification.	>95

Additive:

Substance name	Molecular formula	CAS No.	EC No.	Classification according to CLP	Classification according to CLP	% (w/w)
Aluminum oxide	Al ₂ O ₃	1344-28-1	215-691-6	No classification.	No classification.	4
Water and Impurity						<1

Remark: The rest unspecified ingredients are impurities, and they are not hazard.

Section 4: First aid measures

4.1 Description of first aid measures

General notes: In all cases of doubt, or when symptoms persist, seek medical attention.

Following inhalation:

Move to a fresh air atmosphere. In case of persistent symptoms, consult a doctor.

Following skin contact:

Wash with soap and water.

Following eye contact:

Rinse immediately with plenty of water. If irritation persists, seek medical attention.

Following ingestion:

No adverse health effects anticipated by this route, however, in the event of ingestion, increase intake of liquid in order to flush from the body. In case of persistent symptoms, consult a doctor.

Notes for the doctor:

Treat symptomatically and supportively.

Treatment may vary with condition of victim and specifics of incident.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include: stomach or intestinal upset (nausea, vomiting, and diarrhea) irritation (nose, throat, airways).

4.3 Indication of the immediate medical attention and special treatment needed

Persons with pre-existing skin, eye, or respiratory disease may be at increased risk from the irritant or allergic properties of this material. Attending physician should treat exposed patients symptomatically.

Section 5: Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media:

Use any media appropriate for combustible material in the area.

Unsuitable extinguishing media:

For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Product is inert, non-flammable and non-combustible.

5.3 Advice for fire-fighters

Do not stay in dangerous zone without self-contained breathing apparatus.

In order to avoid contact with skin, keep a safety distance and wear suitable protective clothing.

Section 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Avoid generation of dust. Ensure adequate ventilation. Wear personal protective equipment.

6.2 Environmental precautions

Prevent run-off from entering ground, storm sewers and ditches which lead to natural waterways.

6.3 Methods and material for containment and cleaning up

Use any feasible mechanical means (e.g. vacuum, sweeping) but avoid dusting during clean-up. The product can cause slippery conditions if wet. Even at low concentration, the product renders the discharge in liquid effluent highly visible.

6.4 Reference to other sections

See Section 7 for information on safe handling.

See section 8 for information on personal protection equipment.

See Section 13 for information on disposal.

Section 7: Handling and storage

7.1 Precautions for safe handling

Avoid raising and breathing dust. Observe good industrial hygiene practice for chemical handling.

Avoid raising dust. Handling systems and areas should be operated in such a way as to minimize exposure to dust. Manual handling guidelines should be adhered to when handling sacks.

7.2 Conditions for safe storage, including any incompatibilities Local

exhaust ventilation may be necessary. Handle minimizing dust. Take precautionary measures against static discharges.

Pigments should not be stored in outside areas exposed to the weather.

Care should be taken to avoid exposure to moisture.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

Section 8 : Exposure controls/personal protection**8.1 Control parameters****Occupational exposure limit values:**

There are no currently occupational exposure limit values established for the substance.

DNEL(Derived No Effect Level) for workers:

<i>Exposure pattern</i>	<i>Route</i>	<i>DNEL value</i>	<i>Most sensitive endpoint</i>
Long-term - local effects	Inhalation	10 mg/m ³	Repeated dose toxicity

DNEL(Derived No Effect Level) for the general population:

<i>Exposure pattern</i>	<i>Route</i>	<i>DNEL value</i>	<i>Most sensitive endpoint</i>
Long-term - systemic effects	Oral	700 mg/kg bw/day	Repeated dose toxicity

PNEC(Predicted No Effect Concentration) values:

<i>Environment compartment</i>		<i>PNEC value</i>
Aquatic compartment	water(freshwater)	0.127 mg/L
	water (marine water)	1 mg/L
	water (intermittent releases)	0.61 mg/L
	sediment(freshwater)	1000 mg/kg sediment dw
	sediment (marine water)	100 mg/kg sediment dw
Terrestrial compartment - soil		100 mg/kg soil dw
Sewage treatment plant		100 mg/L
Oral (secondary poisoning)		1667 mg/kg food

8.2 Exposure controls**Appropriate engineering controls:**

Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Personal protective equipment:

- Eye and face protection: The use of dustproof goggles or glasses with side protections is recommended if dust concentrations are likely to exceed the occupational exposure limit.
- Skin protection: Respect main rules concerning the protection clothes for chemicals handling. Prolonged exposure should be avoided by wearing suitable impervious protective gloves.
- Respiratory protection: A respirator must be used if the dust concentration is likely to exceed the occupational exposure limit. An approved dust respirator is recommended as appropriate depending on dust levels and other workplace factors.

Environmental exposure controls:

Do not allow material to contaminate ground water system.

Industrial hygiene:

Individuals having sensitive skin may find it beneficial to use a barrier cream or moisturizer when excessive or prolonged contact with the skin is likely.

Section 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance:	Solid
Color:	White
Odor:	Odorless
pH:	Not applicable.
Melting point:	Ca. 1843 °C
Boiling point:	Ca. 3000 °C.
Relative density:	Ca. 4.26 g/cm ³
Partition coefficient (n -octanol/water):	No data available.
Solubility:	Insoluble in water
Flash point:	No data available.
Auto-ignition temperature:	No data available.
Flammability:	Non-flammable.
Explosive properties:	Not explosive.
Oxidizing properties:	Not an oxidizing liquid.

9.2 Other information

No data available.

Section 10: Stability and reactivity

10.1 Reactivity

It presents no significant reactivity hazards, by itself or in contact with water.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of hazardous reactions

No hazardous reactions known.

10.4 Conditions to avoid

Incompatible materials.

10.5 Incompatible materials

Strong acids.

10.6 Hazardous decomposition products

No hazardous decomposition products known.

Section 11: Toxicological information**11.1 Toxic-kinetics, metabolism and distribution**

No substantial accumulation of titanium was observed in tissues following oral administration of titanium dioxide. Titanium dioxide has been shown not to penetrate human skin to any appreciable degree, so that the dermal absorption of titanium dioxide through human skin is considered negligible.

11.2 Information on toxicological effects**Acute toxicity:**

Acute Oral toxicity: LD₅₀ > 5000 mg/kg (rat) (CSR)

Acute Inhalation toxicity: LC₅₀ > 6.82 mg/l/4h (rat) (CSR)

Acute Dermal toxicity: Quantitative data on the acute dermal toxicity of this product are not available.

Skin corrosion/irritation:

Skin, rabbit: not irritating. (CSR)

Serious eye damage/irritation:

Eyes, rabbit: not irritating. (CSR)

Respiratory or skin sensitization:

Titanium dioxide does not show respiratory sensitizing properties in animal studies or in exposure related observations in humans. (CSR)

CMR effects (Carcinogenicity, Mutagenicity and Toxicity for Reproduction):

The epidemiological evidence from well-conducted investigations has not shown that exposure to titanium dioxide is correlated to any detectable carcinogenic potential for humans.

The substance is not classified as specific target organ toxicant, single exposure, repeated exposure.

STOT-single exposure and repeated exposure:

The substance or mixture is not classified as specific target organ toxicant, single exposure, repeated exposure.

Additional information:

No data available.

Section 12: Ecological information**12.1 Toxicity**

Acute toxicity to fish: $LC_{50} > 1000 \text{ mg/l/96h}$ (*Pimephales promelas*)(CSR);
Acute toxicity to daphnia: $EC_{50} > 100 \text{ mg/l/48h}$ (*Daphnia magna*) (CSR);
Acute toxicity to algae: $EC_{50} = 61 \text{ mg/l/72h}$ (*Pseudokirchnerella subcapitata*) (CSR);
Acute toxicity to bacteria: $EC_{50} > 1000 \text{ mg/l/1h}$ (*Escherichia coli*) (CSR).

12.2 Persistence and degradability

TiO₂ can be considered as highly insoluble in water. According to column 2 from Annex VII from the REACH regulation and Guidance Chapter R7b, a study on ready biodegradability does not need to be conducted if the substance is inorganic. Degradation/biodegradation testing is not relevant for metals and metal compounds like TiO₂, which are considered as not (bio) degradable.

12.3 Bio-accumulative potential

Ti concentrations in various fish tissues stayed constant over the concentration range of TiO₂ in water tested (0-1 mg TiO₂/L), resulting in decreasing BCF with increasing TiO₂ concentrations. Therefore, TiO₂ not considered as bio-accumulative. (CSR).

12.4 Solubility in soil

No results are available for the adsorption/desorption of TiO₂. Therefore read-across is proposed to K_p values based on available monitoring data for elemental Ti-concentration in water and corresponding sediment or suspended matter (no data are available for soil). These results reflect equilibrium conditions for Ti in the environment, regardless the speciation of Ti. Value used for CSA:

log K_p (solids-water in sediment): 4.61 L/kg;
log K_p (solids-water in suspended matter): 5.36 L/kg;

12.5 Results of PBT and vPvB assessment

According to Annex XIII of regulation (EC) 1907/2006 a PBT and vPvB assessment shall not be conducted for inorganic substances. Titanium dioxide is an inorganic substance, thus a PBT and vPvB assessment is not required

12.6 Other adverse effects

No other information available.

Section 13: Disposal considerations**13.1 Waste treatment methods**

Dispose of in compliance with local and national regulations. Contaminated packages are not considered

hazardous. If recycling is not practicable, dispose of in compliance with local regulations.

Section 14: Transport information

14.1 Land transport (ADR/RID/GGVSE)

This product is not regulated as a hazardous material or dangerous goods for transportation.

14.2 Sea transport (IMDG-Code/GGVSee)

This product is not regulated as a hazardous material or dangerous goods for transportation.

14.3 transport (ICAO-TI/IATA-DGR)

This product is not regulated as a hazardous material or dangerous goods for transportation.

14.4 additional information

No data available.

Section 15: Regulatory information

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

EU regulation:

Authorizations: No information available.

Restrictions on use: No information available.

EINECS: This substance is listed in the inventory.

DSD (67/548/EEC): This substance is not listed in the Annex I.

Other chemical regulation:

USA - TSCA: This substance is listed in the inventory.

Canada - DSL: This substance is listed in the inventory.

Australia - AICS: This substance is listed in the inventory.

Korea - ECL: This substance is listed in the inventory.

Japan - ENCS: This substance is listed in the inventory.

China - IECSC: This substance is listed in the inventory.

15.2 Chemical Safety Assessment

Chemical Safety Assessment has been carried out for this substance in accordance with REACH Article 14. Since Titanium dioxide is neither classified as dangerous nor does it meet the criteria as a PBT/ vPvB substance, no exposure assessment is required.

Section 16: Other information

16.1 Revision Information:

Date of the previous revision: Not applicable.

Date of this revision: 22/12/2010.

Revision summary: The first new SDS

16.2 Abbreviations and acronyms

CLP:	EU regulation (EC) No 1272/2008 on classification, labeling and packaging of chemical substances and mixtures.
CAS:	Chemical Abstracts Service (division of the American Chemical Society).
EINECS:	European Inventory of Existing Commercial Chemical Substances.
RID:	European Rail Transport.
IMDG:	International Maritime Code for Dangerous Goods.
IATA:	International Air Transport Association.
DSD:	Dangerous Substance Directive (67/548/EEC).
TSCA:	Toxic Substances Control Act, The American chemical inventory.
DSL:	Domestic Substances List, The Canadian chemical inventory.
AICS:	The Australian Inventory of Chemical Substances.
ECL:	Existing Chemicals List, the Korean chemical inventory.
ENCS:	Japanese Existing and New Chemical Substances.
IECSC:	Inventory of existing chemical substances in China.

16.3 Key literature references and sources for data

Chemical safety report, Titanium Dioxide.

ESIS IUCLID Dataset: European chemical Substances Information System.

16.4 Training advice

Provide adequate information, instruction and training for operators.

16.5 Declare to reader

The information in this Material Safety Data Sheet (MSDS) was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods of handling, storage, use or disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This MSDS was prepared and is to be used only for this product. If the product is used as a component in another product, this M SDS information may not be applicable. According to REACH Article 31(5), the M SDS shall be supplied in an official language of the Member State(s) where the substance or mixture is placed on the market, unless the recipient Member State(s) concerned provide otherwise. It should also be noted that this MSDS is applicable to the countries with English as an official language.

----- End of the MSDS -----