

Section 1: PRODUCT AND COMPANY IDENTIFICATION**Product Identifier****Product name** TIKON™ TR-36**Other means of identification****Synonyms** Titanium dioxide**Recommended use of the chemical and restrictions on use****Recommended Use** Pigment.**Uses advised against** For use in industrial installations only**Details of the supplier of the safety data sheet**

Company Name Cristal Pigmentos do Brasil SA
Rodovia BA-099 Km 20
Camacari - Bahia - Brazil
TEL: +55-71-3634-9000
FAX: +55-71-3634-9014

Emergency Telephone Number

Product Information: +55-11-3296-1500
Transportation: 0800-707-7022 SUATRAN - COTEC
0800-172-020 SUATRAN - COTEC
Medical: +55-71-3634-9224

Section 2: HAZARDS IDENTIFICATION**GHS - Classification****Classification of the substance or mixture**

Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Label Elements**Signal Word** None**Precautionary Statements**

Not applicable

Other Hazards

Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Chemical name	CAS No	weight-%	GHS - Classification	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Titanium dioxide 13463-67-7	13463-67-7	>80	Not classified	Not classified

Section 4: FIRST AID MEASURES

FIRST AID MEASURES

General advice	No hazards which require special first aid measures.
Inhalation	Remove to fresh air. If symptoms persist, call a physician.
Skin contact	Wash off immediately with soap and plenty of water. Get medical attention if irritation develops and persists.
Eye Contact	Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. If symptoms persist, call a physician.
Ingestion	Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Rinse mouth. Consult a physician if necessary.
Self-protection of the first aider	Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Use personal protection recommended in Section 8.

Most important symptoms and effects, both acute and delayed

Symptoms No information available.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

Section 5: FIRE FIGHTING MEASURES

Suitable Extinguishing Media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media

None known based on information supplied.

Specific extinguishing methods

Evacuate area and fight fire from a safe distance.

Special protective equipment for fire-fighters

Wear self-contained breathing apparatus and protective suit.

Specific hazards arising from the chemical

Avoid creating dust.

Hazardous combustion products Non-combustible.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions	Avoid creating dust. Avoid contact with eyes and skin. Use personal protection recommended in Section 8.
For emergency responders	Evacuate personnel to safe areas. Approach area from upwind. Use personal protection recommended in Section 8.

Environmental Precautions

Environmental Precautions Do not flush into surface water or sanitary sewer system.

Methods and material for containment and cleaning up

Methods for Containment	Prevent further leakage or spillage if safe to do so. Prevent dust cloud. Cover powder spill with plastic sheet or tarp to minimize spreading.
Methods for cleaning up	Take up mechanically, placing in appropriate containers for disposal.
Prevention of secondary hazards	Clean contaminated objects and areas thoroughly observing environmental regulations.

Section 7: HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling	Avoid generation of dust. Ensure adequate ventilation, especially in confined areas. Use with local exhaust ventilation. Avoid contact with skin, eyes or clothing. Use personal protective equipment as required.
General hygiene considerations	Do not eat, drink or smoke when using this product. Regular cleaning of equipment, work area and clothing is recommended. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Storage Conditions	Keep in properly labeled containers. Keep container tightly closed in a dry and well-ventilated place.
Packaging materials	Product may be packaged in normal commercial packaging; paper or plastic material.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure guidelines

Chemical name	Brazil	Chile	Argentina	Venezuela
Titanium dioxide	-	-	TWA: 10 mg/m ³	TWA: 10 mg/m ³

Derived No Effect Level (DNEL) 10 mg/m³

Appropriate engineering controls

Engineering controls	Showers Eyewash stations Ventilation systems Extraction to remove dust at its source
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Individual protection measures, such as personal protective equipment

Eye/face Protection	Wear safety glasses with side shields (or goggles).
Skin and Body Protection	Long sleeve clothing. Suitable protective clothing.
Hand protection	Wear protective gloves.
Respiratory protection	No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State	solid	Odor	None
Appearance	Powder	Odor threshold	Not applicable
Color	white		
Property	Values	Remarks • Method	
pH		Not applicable	
Melting point/freezing point	1830 °C	Melting point / melting range	
Boiling point / boiling range	2972 °C	-	
Flash Point		Not applicable	
Evaporation Rate		Not applicable	
Flammability (solid, gas)		Not flammable	

Flammability Limit in Air		
Upper flammability limit:	Not flammable	
Lower flammability limit:	Not flammable	
Vapor pressure		Not applicable
Vapor Density		Not applicable
Specific gravity	3.7-4.1	(water = 1)
Water solubility	Insoluble in water	-
Solubility(ies)	Insoluble in common solvents	-
Partition coefficient		No data available
Autoignition Temperature		Not applicable
Decomposition temperature		Does not decompose
Kinematic viscosity		Not applicable
Dynamic viscosity		Not applicable
Explosive properties	Not an explosive	
Oxidizing properties	None known	
Softening point	No information available	
Molecular weight	Not applicable	
VOC content (%)	None	
Density	~ 4 kg/L	
Bulk Density	No information available	

Section 10: STABILITY AND REACTIVITY

Reactivity	None known based on information supplied.
Stability	Stable under normal conditions.
Possibility of hazardous reactions	None under normal processing.
Hazardous polymerization	None under normal processing.
Conditions to Avoid	Dust formation.
Incompatible Materials	None known.
Hazardous decomposition products	None under normal use conditions.

Section 11: TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information	Information in this section is a summary of the conclusions of the chemical safety assessment conducted under REACH.
Inhalation	As a nuisance dust, prolonged exposures above recommended levels may cause adverse effects on the lung.
Eye Contact	No data available.
Skin contact	Titanium dioxide does not penetrate either intact or abraded human skin.
Ingestion	No data available.

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Titanium dioxide	> 5000 mg/kg (Rat)	-	> 6,82 mg/L (Rat) 4 h

Information on toxicological effects

Symptoms No information available.

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

Skin corrosion/irritation Titanium dioxide was not classifiable as a skin corrosive or irritant based on in vivo test

results for titanium dioxide submitted in the European Union (REACH) joint submission registration dossier for the substance.

Serious eye damage/eye irritation Titanium dioxide was not classifiable as an eye irritant based on in vivo test results for titanium dioxide submitted in the European Union (REACH) joint submission registration dossier for the substance.

Sensitization No information available.

Germ Cell Mutagenicity Titanium dioxide was negative when tested in vitro in bacterial reverse mutation assays and in mammalian cell gene mutation and clastogenicity assays as well as when tested in vivo.

Carcinogenicity Titanium dioxide is listed by IARC as possibly carcinogenic to humans (Group 2B). This listing is based on inadequate evidence of carcinogenicity in humans and sufficient evidence in experimental animals. In lifetime inhalation studies of rats, airborne respirable-size titanium dioxide particles have been shown to cause lung tumors at concentrations associated with substantial particle lung burdens and consequential pulmonary overload and inflammation. However, other laboratory animals such as mice and hamsters did not develop lung tumors under similar testing with titanium dioxide. Furthermore, human epidemiology studies do not suggest an association between occupational exposure to titanium dioxide and risk for cancer.

Chemical name	ACGIH	IARC	NTP	OSHA
Titanium dioxide	-	Group 2B	-	X

Legend

IARC (International Agency for Research on Cancer) Group 2B - Possibly Carcinogenic to Humans

OSHA (Occupational Safety and Health Administration of the US Department of Labor) X - Present

Reproductive Toxicity Titanium dioxide was not classifiable as a reproductive hazard based on in vivo test results for titanium dioxide submitted in the European Union (REACH) joint submission registration dossier for the substance.

Developmental Toxicity None known.

Teratogenicity None known.

STOT - single exposure Titanium dioxide is not classifiable based on a lack of significant and/or severe toxic effects in humans or in experimental animals following acute exposures.

STOT - repeated exposure Repeated inhalation exposures in rats to poorly soluble dusts such as titanium dioxide lead to a pattern of pulmonary effects including inflammation and fibrosis that are not observed in other rodent species, nonhuman primates, or humans under similar conditions. Therefore, titanium dioxide is not classifiable for repeated exposure.

Neurological Effects None known.
Other adverse effects None known.
Aspiration Hazard Not applicable.

Numerical measures of toxicity - Product Information

No information available

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity Titanium dioxide is of low acute aquatic toxicity.

Persistence and degradability	Titanium dioxide is persistent and does not bioaccumulate. Not readily biodegradable.
Bioaccumulation	Material does not bioaccumulate.
Mobility	Not mobile. Insoluble in water.
Other adverse effects	No information available
Ozone	Not applicable

Section 13: DISPOSAL CONSIDERATIONS

Waste from residues/unused products	Disposal should be in accordance with applicable regional, national and local laws and regulations.
Contaminated packaging	Do not reuse container. Improper disposal or reuse of this container may be dangerous and illegal.

Section 14: TRANSPORT INFORMATION

<u>IMDG</u>	Not regulated
<u>ICAO (air)</u>	Not regulated
<u>IATA</u>	Not regulated
<u>DOT</u>	Not regulated
<u>TDG</u>	Not regulated
<u>MEX</u>	Not regulated
<u>RID</u>	Not regulated
<u>ADR</u>	Not regulated
<u>ADN</u>	Not regulated

Section 15: REGULATORY INFORMATION

International Inventories

TSCA	Complies
DSL	Complies
EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
KECL	Complies
PICCS	Complies
AICS	Complies
NIZIC	Complies
TCSI	Complies

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDL - 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

NZIC - New Zealand Inventory of Chemicals NZIoC - New Zealand Inventory of Chemicals
TCSI - Taiwan Chemical Substance Inventory

Section 16: OTHER INFORMATION

Full text of H-Statements referred to under section 3

Not applicable

Key or legend to abbreviations and acronyms used in the safety data sheet

Not applicable

Classification procedure Expert judgment and weight of evidence determination

Key literature references and sources for data

Chemical Safety Report
(TiO₂)

Prepared by Product Stewardship Department

Issue date 02-Feb-2015

Revision date 17-Aug-2015

Revision note New format

Restrictions on use This product is a pigment intended for industrial use. This product is not intended for consumption, cosmetic, pharmaceutical or medical end use. Cristal will not knowingly sell product for use into these applications

Further information This material safety data sheet has been prepared according to Brazilian legislation and ABNT NBR 14725:2012

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of Safety Data Sheet