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Version 6

Section 1: PRODUCT AND COMPANY IDENTIFICATION

Product Identifier

Product name TiONA® 100, TiONA® 113, TiONA® 121, TiONA® 122, TiONA® 128, TiONA® 134

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

Classification of the substance or mixture

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

Signal Word None

Other Hazards

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

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

Pure substance/mixture Substance

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

Inhalation	Remove to fresh air
Skin contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.
Eye Contact	Wash with plenty of water.
Ingestion	Clean mouth with water and drink afterwards plenty of water.

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. Use personal protective equipment as required.

Specific hazards arising from the chemical

Avoid creating dust.

Explosive properties

Sensitivity to Mechanical Impact None.

Sensitivity to Static Discharge None.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Use personal protection recommended in Section 8. Avoid contact with eyes and skin.

For emergency responders Use personal protective equipment as required.

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.

Methods for cleaning up Take up mechanically, placing in appropriate containers for disposal.

Section 7: HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Ensure adequate ventilation, especially in confined areas.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool 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

Appropriate engineering controls

Engineering controls Ensure adequate ventilation, especially in confined areas. Extraction to remove dust at its source.

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.
Hand protection Wear protective gloves.
Respiratory protection Provide adequate ventilation. In case of inadequate ventilation wear respiratory protection.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Solid,		
Appearance	Powder		Odor None
Color	white		Odor threshold No information available
<u>Property</u>	<u>Values</u>		<u>Remarks • Method</u>
pH			No information available
Melting point/freezing point	1830 °C		No information available
Boiling point / boiling range			No information available
Flash Point			No information available
Evaporation Rate			No information available
Flammability (solid, gas)			No information available
Flammability Limit in Air			
Upper flammability limit:			
Lower flammability limit:			
Vapor pressure			No information available
Vapor Density			No information available
Specific gravity	3.7-4.1		No information available
Water solubility	Insoluble in water		No information available
Solubility(ies)	Insoluble in ether		No information available
Partition coefficient			No information available
Autoignition Temperature			No information available
Decomposition temperature			No information available
Kinematic viscosity			No information available
Explosive properties	No information available		
Oxidizing properties	No information available		
Softening point	No information available		
Molecular weight	79.9		
VOC content (%)	No information available		

Density No information available
Bulk Density No information available

Section 10: STABILITY AND REACTIVITY

Reactivity

None known based on information supplied.

Chemical stability

Stable under normal conditions.

Possibility of hazardous reactions

None under normal processing.

Conditions to Avoid

None known based on information supplied.

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	Not an expected route of exposure.
Skin contact	Titanium dioxide does not penetrate either intact or abraded human skin.
Ingestion	Not an expected route of exposure.

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

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

Irritation	No information available.
Corrosivity	No information available.
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

Reproductive Toxicity	Titanium dioxide did not cause reproductive effects in experimental animals.
Developmental Toxicity	No information available.
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.
Target organ effects	No information available.
Neurological Effects	No information available.
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	Not readily biodegradable.
Bioaccumulation	Material does not bioaccumulate.
Mobility	The product is insoluble and floats on water.

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	Disposal should be in accordance with applicable regional, national and local laws and regulations.

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/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
KECL	Complies
PICCS	Complies
AICS	Complies
NIZIC	Complies

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - 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
NIZIC - New Zealand Inventory of Chemicals

Section 16: OTHER INFORMATION

Issue date	15-May-2009
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Revision note	(M)SDS sections updated. 11.
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 on this SDS 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 guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as 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 material or in any process, unless specified in the text.

End of Safety Data Sheet