



Safety Data Sheet

Issue date 15-May-2009

Revision date 09-Jan-2019

Version 9

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product Identifier

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

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

Supplier Address Cristal USA Inc.
6752 Baymeadow Drive
Glen Burnie, MD, USA 21060
tele: 410-762-1000
fax: 410-762-1037

Manufacturer Address The Gulf Titanium Company Ltd.
Sari Street (in front of Airport Municipality)
Al Rabwah district, P.O. Box 13586
Jeddah 21414, Kingdom of Saudi Arabia
Telephone: +966 012 432 8000

For further information, please contact

E-mail address Regulatory.query@cristal.com

24 Hour Emergency Phone Number

Emergency telephone Chemtrec (USA) 1-800-424-9300

2. HAZARDS IDENTIFICATION

Classification

Label Elements

EMERGENCY OVERVIEW

Not Hazardous

Appearance	Powder	Physical State	solid	Odor	None
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Precautionary Statements - Prevention
Wash hands thoroughly after handling

Precautionary Statements - Response

Not applicable

Precautionary Statements - Storage

Store in accordance with local regulations

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant.

Health Hazards not otherwise classified (HHNOC)

Physical Hazards not otherwise classified (PHNOC)

Other Information

Other Hazards None.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms Titanium dioxide

Chemical name	CAS No	weight-%
Titanium dioxide	13463-67-7	>80
Amorphous silica	7631-86-9	0-9
Aluminum hydroxide	21645-51-2	1.5-5.5
Trade secret	Proprietary	0 - 10%
Zirconium dioxide	1314-23-4	0-0.3

4. FIRST AID MEASURES

FIRST AID MEASURES

Eye Contact Rinse thoroughly with plenty of water, also under the eyelids. If eye irritation persists: Get medical advice/attention.

Skin contact Wash skin with soap and water. If skin irritation persists, call a physician.

Inhalation Remove to fresh air. If symptoms persist, call a physician.

Ingestion Rinse mouth. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.

Self-protection of the first aider Use personal protective equipment as required.

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.

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 hazards arising from the Avoid creating dust.

chemical

Hazardous combustion products Non-combustible.

Protective equipment and precautions for firefighters As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

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

For emergency responders 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. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.

Methods for cleaning up Pick up and transfer to properly labeled containers.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Avoid contact with skin, eyes or clothing. Avoid generation of dust. Use personal protective equipment as required.

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.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Chemical name	ACGIH TLV	OSHA PEL	NIOSH	Alberta OEL	British Columbia OEL	Ontario TWA	Quebec OEL
Titanium dioxide 13463-67-7	TWA: 10 mg/m ³	TWA: 15 mg/m ³ total dust (vacated) TWA: 10 mg/m ³ total dust	IDLH: 5000 mg/m ³ TWA: 2.4 mg/m ³ CIB 63 fine TWA: 0.3 mg/m ³ CIB 63 ultrafine, including engineered nanoscale	TWA: 10 mg/m ³	TWA: 10 mg/m ³ TWA: 3 mg/m ³	TWA: 10 mg/m ³	TWA: 10 mg/m ³

Legend Legend:
NIOSH Immediately Dangerous to Life or Health

Appropriate engineering controls

Engineering controls Showers
 Eyewash stations
 Ventilation systems
 Extraction to remove dust at its source
 Ensure adequate ventilation, especially in confined areas

Individual protection measures, such as personal protective equipment

Eye/face Protection Wear safety glasses with side shields (or goggles).

Skin and Body Protection Long sleeved clothing. Protective gloves.

Respiratory protection If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

General hygiene considerations Do not eat, drink or smoke when using this product. Take off all contaminated clothing and wash it before reuse. Wash contaminated clothing before reuse. Contaminated work clothing should not be allowed out of the workplace. Keep working clothes separately. Regular cleaning of equipment, work area and clothing is recommended. Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical State	solid	Appearance	Powder
Odor	None	Color	white
Odor threshold	Not applicable		

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	6 - 10	10g/100ml aqueous solution
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 applicable
Flammability Limit in Air		Not applicable
Upper flammability limit:	Not applicable	
Lower flammability limit:	Not applicable	
Vapor pressure		Not applicable
Vapor Density		Not applicable
Specific gravity	3.7-4.1	-
Water solubility	Insoluble in water	-
Solubility in other solvents	Insoluble in common solvents	-
Partition coefficient		No data available
Autoignition Temperature		Not applicable
Decomposition temperature		Not applicable
Kinematic viscosity		Not applicable
Dynamic viscosity		Not applicable
Explosive properties	Not an explosive	
Oxidizing properties	None known	

Other Information

Softening point No information available
Molecular weight Not applicable

VOC content (%)	None
Density	~ 4 kg/L
Surface Area	No information available
Bulk Density	No information available

10. STABILITY AND REACTIVITY

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

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information	Product does not present an acute toxicity hazard based on known or supplied 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 13463-67-7	> 5000 mg/kg (Rat)	-	> 6,82 mg/L (Rat) 4 h

Information on toxicological effects

Symptoms	No information available.
<u>Delayed and immediate effects as well as chronic effects from short and long-term exposure</u>	
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 13463-67-7	-	Group 2B	-	X
Amorphous silica 7631-86-9	-	Group 3	Known	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.

Aspiration Hazard

Not applicable.

12. ECOLOGICAL INFORMATION

Marine pollutant

No

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.

Other adverse effects

No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal of wastes	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.

14. TRANSPORT INFORMATION

<u>DOT</u>	
Proper Shipping Name	Not regulated
Marine pollutant	No
<u>TDG</u>	
Proper Shipping Name	Not regulated
<u>MEX</u>	
Proper Shipping Name	Not regulated
<u>ICAO (air)</u>	
Proper Shipping Name	Not regulated
<u>IATA</u>	
Proper Shipping Name	Not regulated
<u>IMDG</u>	
Proper Shipping Name	Not regulated

15. REGULATORY INFORMATION

International Inventories

TSCA	Complies
DSL	Complies
EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
KECL	Complies
PICCS	Complies
AICS	Complies
NZIoC	Complies
TCSI	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
NZIC - New Zealand Inventory of Chemicals
TCSI - Taiwan Chemical Substance Inventory

National Regulations

Chemical name	WHMIS Hazard Class
Titanium dioxide - 13463-67-7	1
Amorphous silica - 7631-86-9	1
Aluminum hydroxide - 21645-51-2	1
Trade secret -	1
Zirconium dioxide - 1314-23-4	1

16. OTHER INFORMATION

Prepared by	Product Stewardship Department
Issue date	15-May-2009
Revision date	09-Jan-2019
Revision note	SDS sections updated, 15, (International Inventories)
Other Information	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

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