



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

OSHA Regulatory Status

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.122)

Label Elements

EMERGENCY OVERVIEW

Not Hazardous

Appearance Powder **Physical State** solid **Odor** None

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

Other Information

Hazards not otherwise classified (HNOC) Not applicable

Other Hazards None.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms Titanium dioxide

Chemical name	CAS No	weight-%	Trade secret
Titanium dioxide	13463-67-7	>80	*

*The exact percentage (concentration) of composition has been withheld as a trade secret.

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 chemical Avoid creating dust.

Hazardous combustion products Non-combustible.

Explosion data

Sensitivity to Mechanical Impact Not impact sensitive.
Sensitivity to Static Discharge Not sensitive.

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

Exposure guidelines Personal, workplace, and environmental monitoring may be carried out to prevent exposure above recommended limits.

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	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

Chemical name	ACGIH TLV	OSHA PEL	NIOSH	Alberta OEL	British Columbia OEL	Ontario TWA	Quebec OEL
			CIB 63 ultrafine, including engineered nanoscale				

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. Temporary drying effect and/or irritation of mucous membranes may result from excessive exposure. Exposure to dust may aggravate pre-existing respiratory conditions.
Eye Contact	No data available.
Skin contact	Titanium dioxide does not penetrate either intact or abraded human skin. Prolonged contact may result in rashes/irritations due to drying of the skin and/or mechanical abrasion related to skin-to-clothing contact or skin-to-skin contact.
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.
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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 13463-67-7	-	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.
Aspiration Hazard	Not applicable.

12. ECOLOGICAL INFORMATION

Marine pollutant	No
<u>Ecotoxicity</u>	Titanium dioxide is of low acute aquatic toxicity.

<u>Persistence and degradability</u>	Titanium dioxide is persistent and does not bioaccumulate. Not readily biodegradable.
<u>Bioaccumulation</u>	Material does not bioaccumulate.
<u>Mobility</u>	Not mobile.
<u>Other adverse effects</u>	No information available
Ozone	Not applicable

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

<u>International Inventories</u>	
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

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories

Acute Health Hazard	No
Chronic Health Hazard	Yes
Fire Hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

US State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals

Chemical name	California Proposition 65
Titanium dioxide - 13463-67-7	Carcinogen
Amorphous silica - 7631-86-9	Carcinogen

U.S. State Right-to-Know Regulations

This product may contain substances regulated by state right-to-know regulations.

Chemical name	New Jersey	Massachusetts	Pennsylvania
Titanium dioxide 13463-67-7	X	X	X

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