

**1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING****Product Identifier**

**Product name** TiONA® RCL-3, TiONA® RCL-9, TiONA® RCL-69, TiONA® RCL-722, TiONA® 595, TiONA® 596, TiONA® 696

**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

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**

The product contains no substances which at their given concentration, are considered to be hazardous to health

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

**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 immediately with plenty of water, also under the eyelids, for at least 15 minutes. 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. Do NOT induce vomiting. 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 protective equipment as required.

**For emergency responders** Use personal protection recommended in Section 8.

### Environmental Precautions

**Environmental Precautions** Do not flush into surface water or sanitary sewer system. Do not allow into any sewer, on the ground or into any body of water.

### Methods and material for containment and cleaning up

**Methods for Containment** Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.

**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.

## 7. HANDLING AND STORAGE

### Precautions for safe handling

**Advice on safe handling** Avoid contact with skin, eyes or clothing. Avoid generation of dust. 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.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters

#### Exposure guidelines

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 <sup>3</sup>	TWA: 15 mg/m <sup>3</sup> total dust (vacated) TWA: 10 mg/m <sup>3</sup> total dust	IDLH: 5000 mg/m <sup>3</sup>	TWA: 10 mg/m <sup>3</sup>	TWA: 10 mg/m <sup>3</sup> TWA: 3 mg/m <sup>3</sup>	TWA: 10 mg/m <sup>3</sup>	TWA: 10 mg/m <sup>3</sup>

#### 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. Keep working clothes separately. Regular cleaning of equipment, work area and clothing is recommended. Handle in accordance with good industrial hygiene and safety practice. Contaminated work clothing should not be allowed out of the workplace.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

Information on basic physical and chemical properties

<b>Physical State</b>	solid	<b>Appearance</b>	Powder
<b>Odor</b>	None	<b>Color</b>	white
<b>Odor threshold</b>	Not applicable		

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
<b>pH</b>	6-9	10g/100ml aqueous solution
<b>Melting point/freezing point</b>	1830 °C	Melting point / melting range
<b>Boiling point / boiling range</b>	2972 °C	-
<b>Flash Point</b>		Not applicable
<b>Evaporation Rate</b>		Not applicable
<b>Flammability (solid, gas)</b>		Not flammable
<b>Flammability Limit in Air</b>		
<b>Upper flammability limit:</b>	Not applicable	
<b>Lower flammability limit:</b>	Not applicable	
<b>Vapor pressure</b>		Not applicable
<b>Vapor Density</b>		Not applicable
<b>Specific gravity</b>	3.7-4.1	(water = 1)
<b>Water solubility</b>	Insoluble in water	-
<b>Solubility in other solvents</b>	Insoluble in common solvents	-
<b>Partition coefficient</b>		No data available
<b>Autoignition Temperature</b>		Not applicable
<b>Decomposition temperature</b>		Not applicable
<b>Kinematic viscosity</b>		Not applicable
<b>Dynamic viscosity</b>		Not applicable
<b>Explosive properties</b>	Not an explosive	
<b>Oxidizing properties</b>	None known	

Other Information

<b>Softening point</b>	No information available
<b>Molecular weight</b>	Not applicable
<b>VOC content (%)</b>	None
<b>Density</b>	~ 4 kg/L
<b>Surface Area</b>	No information available
<b>Bulk Density</b>	No information available

## 10. STABILITY AND REACTIVITY

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

## 11. TOXICOLOGICAL INFORMATION

### Information on likely routes of exposure

<b>Product Information</b>	Information in this section is a summary of the conclusions of the chemical safety assessment conducted under REACH. Product does not present an acute toxicity hazard based on known or supplied information
<b>Inhalation</b>	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.
<b>Eye Contact</b>	Inert foreign body hazard only.
<b>Skin contact</b>	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.
<b>Ingestion</b>	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

<b>Symptoms</b>	No information available.
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### Delayed and immediate effects as well as chronic effects from short and long-term exposure

<b>Skin corrosion/irritation</b>	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.
<b>Serious eye damage/eye irritation</b>	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.
<b>Sensitization</b>	No information available.
<b>Germ Cell Mutagenicity</b>	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**

No information available.

**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.

**Other adverse effects**

No information available

**Ozone**

Not applicable

**13. DISPOSAL CONSIDERATIONS**

**Waste treatment methods**

<b>Disposal of wastes</b>	Disposal should be in accordance with applicable regional, national and local laws and regulations.
<b>Contaminated packaging</b>	Do not reuse container. Improper disposal or reuse of this container may be dangerous and illegal.

## 14. TRANSPORT INFORMATION

<b>DOT</b>	
Proper Shipping Name	Not regulated
<b>TDG</b>	
Proper Shipping Name	Not regulated
<b>MEX</b>	
Proper Shipping Name	Not regulated
<b>ICAO (air)</b>	
Proper Shipping Name	Not regulated
<b>IATA</b>	
Proper Shipping Name	Not regulated
<b>IMDG</b>	
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 NZIoC - 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	No
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

**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-Apr-2009
Revision date	30-Apr-2018
Revision note	SDS sections updated 11
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