

**1. PRODUCT AND COMPANY IDENTIFICATION**

Product Name	<b>Titanium Dioxide, Enriched Titanium</b>
Chemical Formula	TiO <sub>2</sub>
Molecular Weight	79.87
CAS No.	13463-67-7
EINECS No.	236-675-5
Synonyms	Titanium (IV) Oxide, Titania
Supplier Address*	ISO FLEX USA PO Box 29475 San Francisco CA 94129 United States
Telephone	+1 415-440-4433
Fax	+1 415-563-4433
Emergency Phone Number (both supplier and manufacturer)	Infotrac/ +1 800-535-5053 *May include subsidiaries or affiliate companies/divisions
Email	<a href="mailto:usa@isoflex.com">usa@isoflex.com</a>
Website	<a href="http://www.isoflex.com">www.isoflex.com</a>
Preparation Information	ISO FLEX USA Product Safety +1 415-440-4433

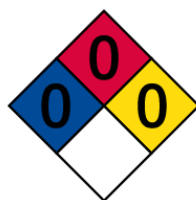
**2. HAZARDS IDENTIFICATION**

**Emergency Overview:**

CAUTION! May cause irritation to skin, eyes, and respiratory tract. May affect lungs.

**NFPA Ratings:** (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

**Health Hazard = 0      Flammability = 0      Reactivity = 0**



**HMIS Ratings:** (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

**Health Hazard = 0      Flammability = 0      Physical Hazard = 0**

<b>HEALTH HAZARD</b>	<b>0</b>
<b>FLAMMABILITY</b>	<b>0</b>
<b>PHYSICAL HAZARD</b>	<b>0</b>

### Potential Health Effects

<i>Inhalation</i>	May cause mild irritation to the respiratory tract
<i>Ingestion</i>	Not expected to be a health hazard via ingestion
<i>Skin Contact</i>	May cause mild irritation and redness
<i>Eye Contact</i>	May cause mild irritation, possible reddening
<i>Chronic Exposure</i>	Long-term exposure to titanium dioxide dust may result in mild fibrosis (scarring of the lungs)
<i>Aggravation of Pre-existing Conditions</i>	Persons with pre-existing lung disease may be more susceptible to the effects of this substance

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### 3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name:	Titanium Dioxide
CAS No.:	13463-67-7
Chemical Formula:	TiO <sub>2</sub>
Molecular Weight:	79.87

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### 4. FIRST AID MEASURES

<i>Inhalation Exposure</i>	Remove to fresh air. Get medical attention for any breathing difficulty.
<i>Oral Exposure</i>	Not expected to require first aid measures. If large amounts were swallowed, give water to drink and get medical advice.
<i>Dermal Exposure</i>	Immediately flush skin with plenty of soap and water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention if irritation develops.
<i>Eye Exposure</i>	Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention if irritation persists.

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### 5. FIREFIGHTING MEASURES

<i>Fire</i>	Not considered a fire hazard
<i>Explosion</i>	Not considered an explosion hazard
<i>Suitable Extinguishing Media</i>	Use any means suitable for extinguishing surrounding fire.

#### Firefighting

<i>Protective Equipment</i>	In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure-demand or other positive-pressure mode.
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### 6. ACCIDENTAL RELEASE MEASURES

<i>Personal Precautions</i>	Wear appropriate personal protective equipment as specified in Section 8. Ventilate area of leak or spill. Avoid dust formation. Avoid breathing vapors, mist or gas.
<i>Environmental Precautions</i>	Do not let product enter drains.

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## 7. HANDLING AND STORAGE

### Handling

Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs. Provide appropriate exhaust ventilation at places where dust is formed.

### Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

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## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### Airborne Exposure Limits

OSHA Permissible  
Exposure Limit (PEL)

15 mg/m<sup>3</sup> (TWA)

ACGIH Threshold  
Limit Value (TLV)

10 mg/m<sup>3</sup> (TWA), A4 - Not classifiable as a human carcinogen

Ventilation System

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

### Personal Protective Equipment

Personal Respirators  
(NIOSH Approved)

If the exposure limit is exceeded, a half-face dust/mist respirator may be worn for up to ten times the exposure limit or the maximum-use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-facepiece dust/mist respirator may be worn up to 50 times the exposure limit, or the maximum-use concentration specified by the appropriate regulatory agency, or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. **WARNING:** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection

Wear protective gloves and clean body-covering clothing.

Eye Protection

Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Appearance

Form

Powder

Color

White

Odor

Odorless

## Safety Data

Solubility:	Insoluble in water
pH:	ca. 6-7
Boiling Point:	2500-3000 °C (4532-5432 °F)
Melting Point:	1855 °C (3371 °F)
Vapor Density (Air=1):	Not applicable
Vapor Pressure (mm Hg):	Not applicable
Evaporation Rate (BuAc=1):	No information found
Specific Gravity:	4.26% Volatiles by volume @ 21 °C (70 °F): 0

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## 10. STABILITY AND REACTIVITY

<i>Stability</i>	Stable under ordinary conditions of use and storage
<i>Hazardous Decomposition Products</i>	No information found
<i>Hazardous Polymerization</i>	Will not occur
<i>Incompatible Materials</i>	For Titanium Dioxide: A violent reaction with lithium occurs around 200 °C (392 °F) with a flash of light; the temperature can reach 900 °C. Violent or incandescent reaction may also occur with other metals such as aluminum, calcium, magnesium, potassium, sodium or zinc.
<i>Conditions to Avoid</i>	Dusting and incompatible materials

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## 11. TOXICOLOGICAL INFORMATION

<i>Toxicological Data</i>	No LD50/LC50 information found relating to normal routes of occupational exposure. Investigated as a tumorigen and mutagen.
<b>Carcinogenicity</b>	
<i>NIOSH</i>	NIOSH considers this substance to be a potential occupational carcinogen.
<i>NTP</i>	This substance is not known to be and is not anticipated to be a carcinogen.
<i>IARC</i>	Category 3

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## 12. ECOLOGICAL INFORMATION

### Toxicity

<i>Toxicity to Fish</i>	LC50 - Other Fish - > 1,000 mg/l - 96 h
<i>Toxicity to Daphnia and Other Aquatic Invertebrates</i>	EC50 - <i>Daphnia magna</i> (Water flea) - > 1,000 mg/l - 48 h EC0 - <i>Daphnia magna</i> (Water flea) - 1,000 mg/l - 48 h
<i>Persistence and Degradability</i>	No data available
<i>Bioaccumulative Potential</i>	No data available
<i>Mobility in Soil</i>	No data available
<i>Results of PBT and vPvB Assessment</i>	PBT/vPvB assessment not available, as chemical safety assessment not required/not conducted
<i>Other Adverse Effects</i>	No data available

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**13. DISPOSAL CONSIDERATIONS***Product*

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of unused product in accordance with federal, state and local requirements.

*Contaminated Packaging*

Dispose of container in accordance with federal, state and local requirements.

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**14. TRANSPORT INFORMATION**

Not regulated.

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**15. REGULATORY INFORMATION***REACH Number*

A registration number is not available for this substance, as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

**SARA 302 Components**

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components**

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**SARA 311/312 Hazards**

Chronic Health Hazard

**Massachusetts Right to Know Components**

Titanium dioxide, nanoparticles range in size from 1 to 150 nm  
CAS No. 13463-67-7 / Revision Date 1994-04-01

**Pennsylvania Right to Know Components**

Titanium dioxide, nanoparticles range in size from 1 to 150 nm  
CAS No. 13463-67-7 / Revision Date 1994-04-01

**New Jersey Right to Know Components**

Titanium dioxide, nanoparticles range in size from 1 to 150 nm  
CAS No. 13463-67-7 / Revision Date 1994-04-01

**California Prop. 65 Components**

WARNING! This product contains a chemical known to the State of California to cause cancer. Titanium dioxide, nanoparticles range in size from 1 to 150 nm.

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**16. OTHER INFORMATION***Prepared By*

ISOFLEX USA  
PO Box 29475  
San Francisco CA 94129  
United States

*Issuing Date*

December 22, 2014

*Revision Date*

July 29, 2021

*Revision Number*

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*Revision Note*

Required review and update

## ISOFLEX USA's Commonly Used Abbreviations and Acronyms\*

ACGIH	American Conference of Governmental Industrial Hygienists
ADR	European Agreement Concerning the International Carriage of Dangerous Goods by Road
AICS	Australian Inventory of Chemical Substances
ALARA	As Low As Is Reasonably Achievable
AMU	Atomic Mass Unit
ANSI	American National Standards Institute
BLS	Basic Life Support
BOD5	Biochemical Oxygen Demand
CAM	Continuous Air Monitor
CAS	Chemical Abstracts Service (division of the American Chemical Society)
CEN	European Committee for Standardization
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CLP	Classification, Labelling and Packaging (European Union)
COD	Chemical Oxygen Demand
CPR	Controlled Products Regulations (Canada)
CWA	Clean Water Act (USA)
DAC	Derived Air Concentration (USA)
DOE	United States Department of Energy (USA)
DOT	United States Department of Transportation (USA)
DSL	Domestic Substances List (Canada)
EC50	Half Maximal Effective Concentration
ECL	Korean Existing Chemicals List
EINECS	European Inventory of Existing Commercial Chemical Substances
EHS	Environmentally Hazardous Substance
ELINCS	European List of Notified Chemical Substances
EMS	Emergency Response Procedures for Ships Carrying Dangerous Goods
EPA	Environmental Protection Agency (USA)
EPCRA	Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986
GHS	Globally Harmonized System
HMIS	Hazardous Materials Identification System (USA)
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IBC	Intermediate Bulk Containers
ICAO	International Civil Aviation Organization
IDLH	Immediately Dangerous to Life or Health
IECSC	Inventory of Existing Chemical Substances Produced or Imported in China
IMDG	International Maritime Code for Dangerous Goods
LC50	Lethal concentration, 50 percent
LD50	Lethal dose, 50 percent
LDLO	Lethal Dose Low
LOEC	Lowest-Observed-Effective Concentration
MARPOL	International Convention for the Prevention of Pollution from Ships
MSHA	Mine Safety and Health Administration (USA)
NCRP	National Council on Radiation Protection & Measurements (USA)
NDSL	Non-Domestic Substances List (Canada)
NFPA	National Fire Protection Association (USA)
NIOSH	National Institute for Occupational Safety and Health (USA)
NOEC	No Observed Effect Concentration
N.O.S.	Not Otherwise Specified
NRC	Nuclear Regulatory Commission (USA)
NTP	National Toxicology Program (USA)
OSHA	Occupational Safety and Health Administration (USA)
PBT	Persistent Bioaccumulative and Toxic Chemical
PEL	Permissible Exposure Limit
PICCS	Philippines Inventory of Chemicals and Chemical Substances
PIH	Poisonous by Inhalation Hazard

RCRA	Resource Conservation and Recovery Act (USA)
RCT	Radiation Control Technician
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals (Europe)
RID	Regulations Concerning the International Transport of Dangerous Goods by Rail
RQ	Reportable Quantity
RTECS	Registry of Toxic Effects of Chemical Substances
SARA	Superfund Amendments and Reauthorization Act (USA)
SNUR	Significant New Use Rule (TSCA)
TDG	Transportation of Dangerous Goods (Canada)
TIH	Toxic by Inhalation Hazard
TLV	Threshold Limit Value
TPQ	Threshold Planning Quantity
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average
UN	United Nations (Number)
VOC	Volatile Organic Compound
vPvB	Very Persistent Very Bioaccumulative Chemical
WGK	Wassergefährdungsklassen (Germany: Water Hazard Classes)
WHMIS	Workplace Hazardous Materials Information System

\*One or more of the above-listed items may not appear in this document.

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