



Material Safety Data Sheet

TSI Incorporated
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24 hour Emergency telephone
CHEMTREC: 1-800-424-9300

Outside US and Canada
Chemtrec: 703-527-3887

Note: CHEMTREC number to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

All non-emergency questions should be directed to Customer Service (1-800-874-2811) for assistance.

Section 1.	CHEMICAL PRODUCT SECTION
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Product Name: Titanium oxide, titanium dioxide, titanic anhydride, titanic acid anhydride, titanic oxide, titania.

CHEMICAL FAMILY: Metal oxide

Product Number: 10086A

Section 2.	INFORMATION ON HAZARDOUS INGREDIENTS
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HAZARDOUS COMPONENTS (CHEMICAL NAME)

<u>NAME:</u>	Titanium oxide	<u>PERCENTAGE:</u>	0.0 -100.0 %
<u>CAS #:</u>	13463-67-7		
<u>RTECS #:</u>	XR2275000		
<u>OSHA PEL:</u>	15 mg/m3 total dust	<u>ACGIH TLV:</u>	10 mg/m3
<u>SEC.302 (EHS):</u>	No	<u>SEC.304 RQ:</u>	No
<u>SEC.313:</u>	No		

Section 3.**HAZARD IDENTIFICATION**

ROUTE(S) OF ENTRY: Inhalation? Yes , Skin? No , Eyes? No , Ingestion? No, Other: N
HEALTH HAZARDS (ACUTE AND CHRONIC)

TITANIUM COMPOUNDS: There are no reported cases in the literature where titanium as such has caused human intoxication. The dusts of titanium or most titanium compounds may be placed in the nuisance category. (Sax, Dangerous Properties of Industrial Materials, eighth edition)

INHALATION:

Acute: Dust may cause irritation to the upper respiratory tract and mucous membranes.

Chronic: May cause slight lesions in the lungs, lung fibrosis, bronchitis and emphysema.

INGESTION:

Acute: No acute health effects recorded.

Chronic: No chronic health effects recorded.

SKIN: Acute: May cause skin irritation.

Chronic: No chronic health effects recorded.

EYE:

Acute: Prolonged or repeated contact may cause irritation.

Chronic: No chronic health effects recorded.

TARGET ORGANS: No target organ effects recorded.

CARCINOGENICITY: NTP? No , IARC Monographs? No , OSHA Regulated? No

CARCINOGENICITY/OTHER INFORMATION

Questionable carcinogen with experimental carcinogenic, neoplastigenic, and tumorigenic data.

orl-rat LD50: >7,500 mg/kg

Human Standard Draize Test Dose: 300 ug/3D-I; Reaction: mild

Mutagenic: Mouse Micronucleus Test; route: Intraperitoneal; Dose: 3gm/kg3D-C. Hamster DNA Inhibition; Cell Type: lung; Dose: 500 mg/L

Tumorigenic: Rat Route: Inhalation; Dose: 250 mg/m³/6H/2Y-I; Toxic Effects:

Tumorigenic - Carcinogenic by RTECs Criteria; Lungs, Thorax, or Respiration - Tumors

Rat Route: Inhalation; Dose: 10 mg/m³/18H/2Y-I; toxic Effects: Tumorigenic -

Carcinogenic by RTECs criteria; Lungs Thorax, or Respiration - Tumors.

RECOMMENDED EXPOSURE LIMITS: See "Section II"

LD 50/LC 50: See "Carcinogenicity/Other Information"

SIGNS AND SYMPTOMS OF EXPOSURE

INHALATION: May cause a red, dry throat and coughing.

INGESTION: No acute or chronic health effects recorded.

SKIN: May cause redness, burning, and itching.

EYE: May cause redness, burning, itching and watering.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE

Pre-existing respiratory disorders.

Section 4. FIRST AID MEASURES

EMERGENCY AND FIRST AID PROCEDURES

INHALATION: Remove victim to fresh air; keep warm and quiet; give oxygen if breathing is difficult and seek medical attention.

INGESTION: Give 1-2 glasses of milk or water and induce vomiting; seek medical attention. Never induce vomiting or give anything by mouth to an unconscious person.

SKIN: Remove contaminated clothing; brush material off skin; wash affected area with mild soap and water; seek medical attention if symptoms persist.

EYE: Flush eyes with lukewarm water, lifting upper and lower eyelids, for at least 15 minutes. Seek medical attention if symptoms persist

Section 5. FIRE FIGHTING MEASURES

FLASH PT: N.A. **METHOD USED:** No data.

EXPLOSIVE LIMITS: LEL: NA UEL: NA

EXTINGUISHING MEDIA

USE: Not applicable. Use suitable extinguishing agent for surrounding materials and type of fire.

SPECIAL FIRE FIGHTING PROCEDURES

Firefighters must wear full face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes. Fumes from fire are hazardous. Isolate runoff to prevent environmental pollution.

UNUSUAL FIRE AND EXPLOSION HAZARDS

May have a violent or incandescent reaction with metals at high temperatures.

Section 6. ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Wear appropriate respiratory and protective equipment specified in section VIII-control measures. Isolate spill area and provide ventilation. Vacuum up spill using a high efficiency particulate absolute (HEPA) air filter and place in a closed container for proper

disposal. Take care not to raise dust. .

Section 7.	HANDLING AND STORAGE
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HAZARD LABEL INFORMATION:

Store in cool, dry area Store in tightly sealed container

Store away from oxidizers Wash thoroughly after handling

PRECAUTIONS TO BE TAKEN IN HANDLING

None

PRECAUTIONS TO BE TAKEN IN STORING

None

OTHER PRECAUTIONS

None

Section 8.	EXPOSURE CONTROL / PERSONAL PROTECTION
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PROTECTIVE EQUIPMENT SUMMARY - HAZARD LABEL INFORMATION:

NIOSH approved respirator Impervious gloves Safety glasses

Clothes to prevent skin contact

RESPIRATORY EQUIPMENT (SPECIFY TYPE)

NIOSH approved respirator

VENTILATION

Local exhaust ventilation may be necessary to control any air contaminants to within their PELs or TLVs during the use of this product.

Good general ventilation is recommended.

EYE PROTECTION

Safety glasses

PROTECTIVE GLOVES

Rubber gloves

OTHER PROTECTIVE CLOTHING

Clothes to prevent skin contact

WORK/HYGIENIC/MAINTENANCE PRACTICES

Implement engineering and work practice controls to reduce and maintain concentration of exposure at low levels. Use good housekeeping and sanitation practices. Do not use tobacco or food in work area. Wash thoroughly before eating and smoking. Do not blow dust off clothing or skin with compressed air.

Section 9.**PHYSICAL AND CHEMICAL PROPERTIES**

<u>PHYSICAL STATES:</u>	[] Gas , [] Liquid , [X] Solid
<u>BOILING POINT:</u>	2500.00 C (4532.0 F) to 3000.00 C (5432.0 F)
<u>MELTING POINT:</u>	1830.00 C (3326.0 F) to 1860.00 C (3380.0 F)
<u>SPECIFIC GRAVITY (WATER = 1):</u>	4.26
<u>DENSITY:</u>	4.26 g/mL
<u>VAPOR PRESSURE (VS. AIR OR MM HG):</u>	No data.
<u>VAPOR DENSITY (VS. AIR = 1):</u>	No data.
<u>EVAPORATION RATE (VS BUTYL ACETATE=1):</u>	No data.
<u>SOLUBILITY IN WATER:</u>	insoluble
<u>PERCENT VOLATILE:</u>	N.A.
<u>PH:</u>	7.5
<u>APPEARANCE AND ODOR</u>	
White powder, no odor.	

Section 10.**STABILITY AND REACTIVITY**

STABILITY: Unstable [] Stable [X]
CONDITIONS TO AVOID - INSTABILITY
None

INCOMPATIBILITY - MATERIALS TO AVOID
Strong acids, aluminum, calcium, magnesium, potassium, sodium, zinc

HAZARDOUS DECOMPOSITION OR BYPRODUCTS
None recorded

HAZARDOUS POLYMERIZATION: Will occur [] Will not occur [X]
CONDITIONS TO AVOID - HAZARDOUS POLYMERIZATION
None

Section 11.**TOXICOLOGY INFORMATION**

No information

Section 12.**ECOLOGICAL INFORMATION**

No information

Section 13.**DISPOSAL CONSIDERATIONS**

WASTE DISPOSAL METHOD
Dispose of in accordance with local, state and federal regulations.

Section 14.**TRANSPORTATION INFORMATION****DOT PROPER SHIPPING NAME**

Not Hazardous

Section 15.**REGULATORY INFORMATION****Sections 16.****OTHER INFORMATION****SUPERCEDES REVISION** 06/05/2002Control of Substances Hazardous to Health Regulations
EH40 Occupational Exposure Limits

Maximum Exposure Limit: NE

Occupational Exposure Standard: 10 mg/m³ Total Inhalable Dust
5 mg/m³ Respirable Dust

<u>HMIS HAZARD RATINGS:</u>		<u>OTHER HAZARD RATINGS:</u>		
Health:	1	Health:	1	Minimal: 0
Flammability:	0	Flammability:	0	Slight: 1
Reactivity:	0	Reactivity:	0	Moderate: 2
Protection:	E	Special Hazard:	E	Serious: 3
				Extreme: 4

DOT PROPER SHIPPING NAME

Not Hazardous

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