# Material Safety Data Sheet
## OSHA Hazard Communication Rule

**DATE OF LAST REVISION:** 05-31-96

### Chemical Identity

<table>
<thead>
<tr>
<th>Label Identity</th>
<th>TITANIUM OXIDE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical Name/Synonyms</td>
<td>TITANIUM DIOXIDE</td>
</tr>
<tr>
<td>Formula</td>
<td>TiO2</td>
</tr>
<tr>
<td>Chemical Family</td>
<td>METAL OXIDE</td>
</tr>
<tr>
<td>CAS Registry Number</td>
<td>13463-67-7, LISTED IN THE TSCA INVENTORY</td>
</tr>
</tbody>
</table>

### Hazardous Ingredients

<table>
<thead>
<tr>
<th>%:</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>TLV:</td>
<td>10mg/3</td>
</tr>
<tr>
<td>OSHA/PEL:</td>
<td>10mg/3</td>
</tr>
</tbody>
</table>

### Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color, Form and Odor</td>
<td>White to gray powder or lump, odorless</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>2500-3000°C</td>
</tr>
<tr>
<td>Density (gm/cc)</td>
<td>4.26</td>
</tr>
<tr>
<td>Vapor Pressure @ 20°</td>
<td>NA</td>
</tr>
<tr>
<td>% Volatile by Volume (%)</td>
<td>NA</td>
</tr>
<tr>
<td>Reaction with Water</td>
<td>None</td>
</tr>
<tr>
<td>Evaporation Rate (H2O=1)</td>
<td>NA</td>
</tr>
<tr>
<td>Solubility in Water</td>
<td>Insoluble</td>
</tr>
<tr>
<td>Melting Point</td>
<td>1830-1850°C</td>
</tr>
</tbody>
</table>

### Fire and Explosion Hazard Data

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flash Point</td>
<td>NA</td>
</tr>
<tr>
<td>Autoignition Temperature (°C)</td>
<td>NA</td>
</tr>
<tr>
<td>Flammability</td>
<td>Non-flammable</td>
</tr>
<tr>
<td>Extinguishing Media</td>
<td>Use dry chemical, CO₂, water.</td>
</tr>
<tr>
<td>Special Fire Fighting Procedures</td>
<td>Wear a NIOSH/MSAH self-contained breathing apparatus and full protective clothing to prevent contact with skin and eyes.</td>
</tr>
</tbody>
</table>

### Unusual Fire & Explosion Hazards

<table>
<thead>
<tr>
<th>Value</th>
<th>None</th>
</tr>
</thead>
</table>
HEALTH HAZARD INFORMATION

TOXICITY DATA

No specific data

HMIS RATING:

HEALTH: nd  FLAMMABILITY: nd  REACTIVITY: nd  PERSONAL PROTECTION: nd

ROUTES OF ENTRY

INHALATION: Yes
SKIN: Yes
INGESTION: Yes

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE: None known

EFFECTS OF OVEREXPOSURE (acute and chronic):

INHALATION: may irritate respiratory tract.
DERMAL/EYE: may cause mild irritation to skin and eyes.
OTHER: TiO2 is considered a nuisance dust.

Carcinogenicity: no  NTP: no  IARC Monographs: no  OSHA Regulate: no

EMERGENCY FIRST AID PROCEDURES:

INGESTION: induce vomiting, seek medical attention
INHALATION: remove to fresh air, administer oxygen, seek medical attention
SKIN CONTACT: brush material off skin, wash affected area with soap and water.
EYE CONTACT: Flush eyes with water for 15 minutes, seek medical attention.

REACTIVITY DATA

STABILITY

Stable

CONDITIONS CONTRIBUTING TO UNSTABILITY

ND

INCOMPATIBILITY (MATERIALS TO AVOID)

Reacts violently with Lithium at approx. 200°C

HAZARDOUS DECOMPOSITION PRODUCTS

ND

HAZARDOUS POLYMERIZATION

Will Not Occur

CONDITIONS TO AVOID

No specific data
TITANIUM OXIDE
MATERIAL SAFETY DATA SHEET

SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Wearing full protective clothing, isolate the area and insure proper ventilation. Vacuum up spill and place in a container for proper disposal.

WASTE DISPOSAL METHOD:
Consult federal, state and local regulations for proper disposal.

SPECIAL PROTECTIVE INFORMATION

RESPIRATORY PROTECTION
NIOSH approved respirator

LOCAL EXHAUST
Maintain exposure below TLV level

MECHANICAL (general)
ND

SPECIAL
NA

OTHER
NA

PROTECTIVE GLOVES
Recommended

EYE PROTECTION
Safety glasses with side shields

OTHER PROTECTIVE EQUIPMENT
Maintain sink, safety shower and eyewash fountain in the work area. Wear full protective clothing at all times.

SPECIAL PRECAUTIONS
PRECAUTIONS TO BE TAKEN IN HANDLING/STORAGE:
Store in tightly closed containers, in a cool dry place, wash hands and face thoroughly after handling and before meals.

TRANSPORTATION REQUIREMENTS: not regulated by D.O.T.

DOT CLASS: ND
UN NUMBER: ND
IMCO CLASS: ND
OTHER:

PRECAUTIONARY LABELING
NONE

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NA= NOT APPLICABLE
ND= NO DATA FOUND
NR= NOT RECORDED