

## 1 Identification

<b>Product identifier</b>	
<b>Trade name:</b>	<b>Titanium dioxide (titanium pigment, TMP-free)</b>
<b>Product Codes</b>	<b>3752</b>
<b>CAS Number:</b>	<b>13463-67-7</b>
<b>EC number:</b>	<b>236-675-5</b>
<b>Relevant identified uses of the substance or mixture</b>	<b>White pigment for application in architectural coatings industrial coatings</b>
<b>Uses advised against</b>	<b>None</b>
<b>Details of the supplier of the safety data sheet</b>	
<b>Manufacturer/Supplier:</b>	<b>KRONOS (US), Inc. 5430 LBJ Freeway, Suite 1700 Dallas, Tx 75240 +1 (972) 233-1700</b>
<b>Emergency telephone number:</b>	<b>CHEMTREC: +1-800-424-9300 for transportation emergencies only (U.S.) KRONOS: +1-800-866-5600 for other product information (8:00 am – 5:00 pm, central time U.S.)</b>

## 2 Hazard(s) identification

<b>Classification of the substance or mixture</b>	<b>The substance is not classified, according to the Globally Harmonized System (GHS).</b>
<b>Label elements</b>	
<b>GHS label elements</b>	<b>Not applicable</b>
<b>Hazard pictograms</b>	<b>Not applicable</b>
<b>Signal word</b>	<b>Not applicable</b>
<b>Hazard statements</b>	<b>Not applicable</b>

## 3 Composition/information on ingredients

<b>Chemical characterization: Substances</b>	
<b>CAS No. Description:</b>	<b>CAS: 13463-67-7 Titanium dioxide</b>
<b>EC number:</b>	<b>236-675-5</b>

## 4 First-aid measures

<b>Description of first aid measures</b>	
<b>General information</b>	<b>No special measures required.</b>
<b>After inhalation</b>	<b>Supply fresh air; consult doctor in case of complaints.</b>
<b>After skin contact</b>	<b>Wash with water and soap and rinse thoroughly.</b>

(Contd. on page 2)

Trade name: Titanium dioxide (titanium pigment, TMP-free)

(Contd. of page 1)

**After eye contact**                      Rinse opened eye for several minutes under running water.  
 If symptoms persist consult doctor.

**After swallowing**                      Rinse out mouth and then drink plenty of water.

**Most important symptoms and effects, both acute and delayed**    No further relevant information available.

**Indication of any immediate medical attention and special treatment needed**                      No further relevant information available.

### 5 Fire-fighting measures

**Extinguishing media**  
**Suitable extinguishing agents**                      Use fire fighting measures that suit the environment.  
 The product is not flammable.

**Special hazards arising from the substance or mixture**                      None

**Advice for firefighters**  
**Protective equipment:**                      Use protective measures that suit the hazard conditions.

### 6 Accidental release measures

**Personal precautions, protective equipment and emergency procedures**                      Avoid formation of dust.  
 If workplace exposure limits are exceeded, use respiratory protection according to national regulations.

**Environmental precautions:**                      No special measures required.

**Methods and material for containment and cleaning up:**                      Collect mechanically.  
 Avoid formation of dust.

**Reference to other sections**                      See Section 8 for information on personal protective equipment.  
 See Section 13 for disposal information.

### 7 Handling and storage

**Handling**  
**Precautions for safe handling**                      Provide vacuum dust collection if dust is formed.  
 Titanium dioxide product may be packaged at temperatures of approximately 100 to 120 °C (212 to 248 °F) and stay hot for a long time depending on ambient temperatures and inventory storage practices. Due to the potential of elevated pigment temperature, caution should be used while handling pigment and in solvent

(Contd. on page 3)

Trade name: Titanium dioxide (titanium pigment, TMP-free)

(Contd. of page 2)

**Information about protection against explosions and fires:** applications.  
 The product is not flammable

**Conditions for safe storage, including any incompatibilities**

**Requirements to be met by storerooms and receptacles:** No special requirements.

**Information about storage in one common storage facility:** Not required.

**Further information about storage conditions:** Store in dry conditions.

## 8 Exposure controls/personal protection

### Control parameters

**Components with limit values that require monitoring at the workplace:**

**CAS: 13463-67-7 Titanium dioxide**

**ACGIH - TLV Long-term value: 10 TWA, mg/m<sup>3</sup>**  
**respirable fraction 1mg/m<sup>3</sup> TWA**

**OSHA - PEL Long-term value: 15\* mg/m<sup>3</sup>**  
**\*total dust, 8 hr TWA**

**Exposure controls** Use local exhaust ventilation if airborne concentrations would otherwise exceed applicable exposure limits.

**Personal protective equipment**  
**General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.  
 Titanium dioxide pigments are not irritants but as with all fine powders can absorb moisture and natural oil from the surface of the skin during prolonged exposure. Prolonged exposure should be avoided by wearing suitable protective gloves and clothing.

**Breathing equipment:** If workplace exposure limits are exceeded, use respiratory protection according to national regulations.  
 Use a NIOSH-approved respirator for particulates with N95, P95, or R95 filter, or higher.  
 The respirator must be selected by a technically qualified individual.

**Protection of hands:** Check protective gloves prior to each use for their proper condition.  
 Preventive skin protection by use of skin-protecting agents is recommended.

**Material of gloves:** The selection of suitable gloves depends on the type of job, the characteristics of all substances to be handled and on further marks of quality, which may vary from manufacturer to manufacturer. If the product is used in a preparation of several substances, the resistance of the glove material cannot be calculated in advance and has therefore to be checked prior to the

(Contd. on page 4)

Trade name: Titanium dioxide (titanium pigment, TMP-free)

(Contd. of page 3)

	application.
<b>Eye protection:</b>	<b>Safety glasses</b>
<b>Body protection:</b>	<b>Protective work clothing.</b>

## 9 Physical and chemical properties

### Information on basic physical and chemical properties

#### General Information

##### Appearance:

<b>Form:</b>	<b>Powder</b>
<b>Color:</b>	<b>White</b>
<b>Odor:</b>	<b>Odorless</b>
<b>Odor threshold:</b>	<b>Not relevant</b>

**pH-value (100 g/l) at 20°C (68°F):** 7 - 8.5

<b>Melting point/Melting range:</b>	<b>&gt;1800°C (&gt;3,272°F)</b>
<b>Boiling point/Boiling range:</b>	<b>Not relevant</b>

**Flash point:** Not applicable

**Flammability (solid, gaseous):** Product is not flammable.

**Auto igniting:** Not applicable

**Danger of explosion:** Product is not explosive.

**Density at 20°C (68°F):** 4.2 g/cm<sup>3</sup> (35.049 lbs/gal)

<b>Bulk density at 20°C (68°F):</b>	<b>500-900 kg/m<sup>3</sup></b>
<b>Vapor density</b>	<b>Not applicable.</b>
<b>Evaporation rate</b>	<b>Not applicable.</b>

<b>Solubility in / Miscibility with</b>	
<b>Water:</b>	<b>Insoluble</b>

**Partition coefficient (n-octanol/water):** Not applicable

<b>Viscosity:</b>	
<b>kinematic:</b>	<b>Not applicable</b>

**Other information** No further relevant information available.

## 10 Stability and reactivity

**Reactivity** The product is stable under normal use conditions.

(Contd. on page 5)

Trade name: Titanium dioxide (titanium pigment, TMP-free)

(Contd. of page 4)

**Chemical stability****Thermal decomposition /  
conditions to be avoided:**

No decomposition under normal use conditions.

**Possibility of hazardous  
reactions**

No dangerous reactions known

**Conditions to avoid**

No further data; see Section 7.

**Incompatible materials:**

No further data; see Section 7.

**Hazardous decomposition  
products:**

No dangerous decomposition products known.

**11 Toxicological information****Information on toxicological effects****Acute toxicity:****LD/LC50 values that are relevant for classification:****CAS: 13463-67-7 Titanium dioxide**

Oral LD50 &gt; 5,000 mg/kg (rat) (OECD 425)

Dermal LD50 &gt; 5,000 mg/kg (rabbit)

Inhalative LC50/4h &gt; 6.8 mg/l (rat)

**Primary irritant effect:****on the skin:****OECD 404:**

No irritant effect

**on the eye:****OECD 405:**

No irritant effect

Like any foreign body, particles (dust) can cause mechanical irritation.

**Sensitization:****OECD 406, OECD 429**

No sensitizing effects.

**Subacute to chronic toxicity:****CAS: 13463-67-7 Titanium dioxide**

Oral NOAEL 3,500 mg/kg/d (rat) (90 d)

Dermal NOAEL mg/kg/d  
no relevant data availableInhalative NOAEC 10 mg/m<sup>3</sup> (rat) (90 d)**Additional toxicological  
information:****Titanium Dioxide**On February 18, 2020, the European Union (EU) published the delegated regulation classifying certain powder titanium dioxide (TiO<sub>2</sub>) as a suspected carcinogen (Category 2) via inhalation under EU Regulation No 1272/2008 on classification, labelling, and packing (CLP) of substances and mixtures. Classification

(Contd. on page 6)

Trade name: Titanium dioxide (titanium pigment, TMP-free)

(Contd. of page 5)  
requirements will come into force on October 1, 2021, mandating hazard labels be placed on certain TiO<sub>2</sub> powder products and certain powder mixtures containing TiO<sub>2</sub> sold into the EU market. This classification of TiO<sub>2</sub> is not based on new science but instead on older scientifically questioned animal test data. Other studies and extensive data, including separate epidemiologic studies of TiO<sub>2</sub> workers, have shown no TiO<sub>2</sub>-specific links to cancer. TiO<sub>2</sub> has been characterized by IARC as possibly carcinogenic to humans (Group 2B) through inhalation (not ingestion). It has not been characterized as a potential carcinogen by either NTP or OSHA.

**Carcinogenic categories**

**IARC (International Agency for Research on Cancer)**

CAS: 13463-67-7 Titanium dioxide: 3

**NTP (National Toxicology Program)**

Substance is not listed.

**OSHA-Ca (Occupational Safety & Health Administration)**

Substance is not listed.

## 12 Ecological information

### Toxicity

#### Toxicity to fish

CAS: 13463-67-7 Titanium dioxide

LC50 > 10,000 mg/l (Sheepshead minnow)  
(semi-static, OECD 203 (acute toxicity for fish))

> 1,000 mg/l (Pimephales promelas)  
(static, EPA-540/9-85-006, Acute Toxicity Test for Freshwater Fish)

#### Toxicity to Daphnia and other aquatic invertebrates

CAS: 13463-67-7 Titanium dioxide

LC50 > 10,000 mg/l (Acartia tonsa)  
(ISO 14669 (1999); ISO 5667-16 (1998))

> 1,000 mg/l (Daphnia magna)  
(static, OECD 202 (daphnia acute immobilisation test))

#### Toxicity to algae and aquatic plants

CAS: 13463-67-7 Titanium dioxide

EC50 > 100 mg/l (Pseudokirchneriella subcapitata)  
(static, OECD 201 (freshwater alga and cyanobacteria, growth inhibition test))

> 10,000 mg/l (Skeletonema costatum)  
(ISO 10253)

(Contd. on page 7)

Trade name: Titanium dioxide (titanium pigment, TMP-free)

(Contd. of page 6)

**Toxicity to sediment organisms**

CAS: 13463-67-7 Titanium dioxide

 NOEC ≥ 100,000 mg/kg dw (*Hyalella azteca*)  
 (semi-static, ASTM 1706)

Persistence and degradability    Not relevant for inorganic substances.

Bioaccumulative potential        Does not accumulate in organisms

Mobility in soil                    The substance is immobile in soil.

Other adverse effects              No further relevant information available.

**13 Disposal considerations**

 Waste treatment methods  
 Recommendation

 Material is not a hazardous waste.  
 Disposal must be made according to all federal, state, and local  
 (municipal) regulations.

 Uncleaned packagings:  
 Recommendation:

Disposal must be made according to official regulations.

**14 Transport information**

 UN-Number  
 DOT, ADR/RID/ADN, ADN, IMDG, IATA    Not applicable  
 UN proper shipping name  
 ADR/RID/ADN                                    Not applicable  
 ADN, IMDG, IATA                                Not applicable  
 Transport hazard class(es)

 DOT, ADR/RID/ADN, ADN, IMDG, IATA  
 Class    Not applicable  
 Packing group  
 DOT, ADR/RID/ADN, IMDG, IATA        Not applicable  
 Environmental hazards:                        Not applicable.  
 Special precautions for user                Not applicable.  
 Transport in bulk according to Annex II of  
 MARPOL73/78 and the IBC Code            Not applicable.

Transport/Additional information:        Not dangerous according to the above specifications.

(Contd. on page 8)

Trade name: Titanium dioxide (titanium pigment, TMP-free)

(Contd. of page 7)

**15 Regulatory information**

Safety, health and environmental regulations/legislation specific for the substance or mixture

**SARA****Section 355 (Extremely hazardous substances):**

Substance is not listed

**Section 313 (Specific toxic chemical listings):**

Substance is not listed

**Section 311 (TIER 1 notification)**

Substance is not listed.

**TSCA and Canada DSL Status:****CAS: 13463-67-7 Titanium dioxide: ACTIVE****Hazardous Air Pollutants**

Substance is not listed.

**Proposition 65****Chemicals known to cause cancer:****CAS: 13463-67-7 Titanium dioxide****Additional information:**

The listing is for titanium dioxide as "airborne, unbound particles of respirable size" and does not cover titanium dioxide when it remains within a product matrix.

**OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)****New Jersey Right-to-Know List:**

Substance is listed.

**New Jersey Special Hazardous Substance List:**

Substance is not listed.

**Pennsylvania Right-to-Know List:**

Substance is listed.

**Pennsylvania Special Hazardous Substance List:**

Substance is not listed.

**Carcinogenic categories****EPA (Environmental Protection Agency)**

Substance is not listed.

**TLV (Threshold Limit Value Notation established by ACGIH)****CAS: 13463-67-7 Titanium dioxide: A4 Not classifiable as human carcinogen****EU REACH registration status: 01-2119489379-17-xxxx****Substances of very high concern (SVHC) according to EU REACH, Article 57**

The product is not listed as SVHC, it does not contain any substances of very high concern.

(Contd. on page 9)



**Safety Data Sheet  
acc. to OSHA HCS**

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Version 1.00

Reviewed on 06/01/2023

Trade name: Titanium dioxide (titanium pigment, TMP-free)

(Contd. of page 8)

**16 Other information**

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

**Contact:** KRONOS (US), Inc.  
5430 LBJ Freeway, Suite 1700  
Dallas, Tx 75240  
e-mail: SDS-NA@kronosww.com

**Date of preparation / last revision** 06/01/2023

**Abbreviations and acronyms:** RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)  
ICAO: International Civil Aviation Organisation  
ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)  
IMDG: International Maritime Code for Dangerous Goods  
DOT: US Department of Transportation  
IATA: International Air Transport Association  
EINECS: European Inventory of Existing Commercial Chemical Substances  
CAS: Chemical Abstracts Service (division of the American Chemical Society)  
LC50: Lethal concentration, 50 percent  
LD50: Lethal dose, 50 percent  
OSHA: Occupational Safety & Health  
TLV: Threshold Limit Value  
PEL: Permissible Exposure Limit  
REL: Recommended Exposure Limit

\* Data compared to the previous version altered.

Conformed to U.S. OSHA HCS 2012