



# PRODUCT INFORMATION SHEET

**MATERION**

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1. Product identifier

**Name of the substance** Titanium Dioxide Product  
**Identification number** 13463-67-7 (CAS number)  
**Synonyms** None.  
**Document number** 205  
**Issue date** 10-May-2016  
**Version number** 01

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

**Identified uses** Not available.  
**Uses advised against** None known.

### 1.3. Details of the supplier of the product information sheet

#### Supplier

**Company name** Materion Advanced Materials Group  
**Address** 42 Mt. Ebo Road South  
Brewster, NY 10509  
United States  
**Division**  
**Telephone** Supplier Phone 1+845.279.0900  
**e-mail** Not available.  
**Contact person** Not available.

**1.4. Emergency telephone number** Chemtrec 1+703.527.3887

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

#### Classification according to Regulation (EC) No 1272/2008 as amended

**Health hazards**  
Carcinogenicity Category 2 H351 - Suspected of causing cancer.

**Hazard summary** Not available.

### 2.2. Label elements

#### Label according to Regulation (EC) No. 1272/2008 as amended

**Contains:** Titanium oxide (TiO<sub>2</sub>)  
**Hazard pictograms** None.  
**Signal word** Warning  
**Hazard statements**  
H351 Suspected of causing cancer.

#### Precautionary statements

**Prevention**  
P201 Obtain special instructions before use.  
P202 Do not handle until all safety precautions have been read and understood.  
P281 Use personal protective equipment as required.

**Response**  
P308 + P313 IF exposed or concerned: Get medical advice/attention.

**Storage**  
P405 Store locked up.

**Disposal**  
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**Supplemental label information** None.

**2.3. Other hazards** None known.

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

#### General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	INDEX No.	Notes
Titanium oxide (TiO <sub>2</sub> )	99,9 - 100	13463-67-7 236-675-5	-	-	

**Classification:** -

## SECTION 4: First aid measures

**General information** Not available.

### 4.1. Description of first aid measures

**Inhalation** Not available.

**Skin contact** Not available.

**Eye contact** Not available.

**Ingestion** Not available.

**4.2. Most important symptoms and effects, both acute and delayed** Not available.

**4.3. Indication of any immediate medical attention and special treatment needed** Not available.

## SECTION 5: Firefighting measures

**General fire hazards** Not available.

### 5.1. Extinguishing media

**Suitable extinguishing media** Not available.

**Unsuitable extinguishing media** Use class D extinguishing agents, dry sand or sodium chloride on fire.

**5.2. Special hazards arising from the substance or mixture** Not available.

### 5.3. Advice for firefighters

**Special protective equipment for firefighters** Not available.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

**For non-emergency personnel** Not available.

**For emergency responders** Not available.

**6.2. Environmental precautions** Not available.

**6.3. Methods and material for containment and cleaning up** Not available.

**6.4. Reference to other sections** Not available.

## SECTION 7: Handling and storage

**7.1. Precautions for safe handling** Not available.

**7.2. Conditions for safe storage, including any incompatibilities** Not available.

**7.3. Specific end use(s)** Not available.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### Occupational exposure limits

##### Austria. MAK List, OEL Ordinance (GwV), BGBl. II, no. 184/2001

Material	Type	Value	Form
Titanium Dioxide Product	MAK	5 mg/m <sup>3</sup>	Respirable dust.
	STEL	10 mg/m <sup>3</sup>	Respirable dust.
Components	Type	Value	Form
Titanium oxide (TiO <sub>2</sub> ) (CAS 13463-67-7)	MAK	5 mg/m <sup>3</sup>	Respirable dust.
	STEL	10 mg/m <sup>3</sup>	Respirable dust.

##### Belgium. Exposure Limit Values.

Material	Type	Value	Form
Titanium Dioxide Product	TWA	10 mg/m <sup>3</sup>	
Components	Type	Value	Form
Titanium oxide (TiO <sub>2</sub> ) (CAS 13463-67-7)	TWA	10 mg/m <sup>3</sup>	

##### Bulgaria. OELs. Regulation No 13 on protection of workers against risks of exposure to chemical agents at work

Material	Type	Value	Form
Titanium Dioxide Product	TWA	10 mg/m <sup>3</sup>	Respirable dust.
Components	Type	Value	Form
Titanium oxide (TiO <sub>2</sub> ) (CAS 13463-67-7)	TWA	10 mg/m <sup>3</sup>	Respirable dust.

##### Croatia. Dangerous Substance Exposure Limit Values in the Workplace (ELVs), Annexes 1 and 2, Narodne Novine, 13/09

Material	Type	Value	Form
Titanium Dioxide Product	STEL	4 mg/m <sup>3</sup>	Respirable dust.
		10 mg/m <sup>3</sup>	Total dust.
Components	Type	Value	Form
Titanium oxide (TiO <sub>2</sub> ) (CAS 13463-67-7)	STEL	4 mg/m <sup>3</sup>	Respirable dust.
		10 mg/m <sup>3</sup>	Total dust.

##### Cyprus. OELs. Control of factory atmosphere and dangerous substances in factories regulation, PI 311/73, as amended.

Material	Type	Value	Form
Titanium Dioxide Product	TWA	10 mg/m <sup>3</sup>	
Components	Type	Value	Form
Titanium oxide (TiO <sub>2</sub> ) (CAS 13463-67-7)	TWA	10 mg/m <sup>3</sup>	

##### Denmark. Exposure Limit Values

Material	Type	Value	Form
Titanium Dioxide Product	TLV	6 mg/m <sup>3</sup>	
Components	Type	Value	Form
Titanium oxide (TiO <sub>2</sub> ) (CAS 13463-67-7)	TLV	6 mg/m <sup>3</sup>	

##### Estonia. OELs. Occupational Exposure Limits of Hazardous Substances. (Annex of Regulation No. 293 of 18 September 2001)

Material	Type	Value	Form
Titanium Dioxide Product	TWA	5 mg/m <sup>3</sup>	
Components	Type	Value	Form
Titanium oxide (TiO <sub>2</sub> ) (CAS 13463-67-7)	TWA	5 mg/m <sup>3</sup>	

**Finland. Workplace Exposure Limits**

Material	Type	Value	Form
Titanium Dioxide Product	TWA	10 mg/m <sup>3</sup>	Dust.
<b>Components</b>	<b>Type</b>	<b>Value</b>	<b>Form</b>
Titanium oxide (TiO <sub>2</sub> ) (CAS 13463-67-7)	TWA	10 mg/m <sup>3</sup>	Dust.

**France. Threshold Limit Values (VLEP) for Occupational Exposure to Chemicals in France, INRS ED 984**

Material	Type	Value	Form
Titanium Dioxide Product	VME	10 mg/m <sup>3</sup>	
<b>Components</b>	<b>Type</b>	<b>Value</b>	
Titanium oxide (TiO <sub>2</sub> ) (CAS 13463-67-7)	VME	10 mg/m <sup>3</sup>	

**Germany. TRGS 900, Limit Values in the Ambient Air at the Workplace**

Material	Type	Value	Form
Titanium Dioxide Product	AGW	10 mg/m <sup>3</sup>	Inhalable fraction.
<b>Components</b>	<b>Type</b>	<b>Value</b>	<b>Form</b>
Titanium oxide (TiO <sub>2</sub> ) (CAS 13463-67-7)	AGW	10 mg/m <sup>3</sup>	Inhalable fraction.
		1,25 mg/m <sup>3</sup>	Respirable fraction.

**Greece. OELs (Decree No. 90/1999, as amended)**

Material	Type	Value	Form
Titanium Dioxide Product	TWA	5 mg/m <sup>3</sup>	Respirable.
<b>Components</b>	<b>Type</b>	<b>Value</b>	<b>Form</b>
Titanium oxide (TiO <sub>2</sub> ) (CAS 13463-67-7)	TWA	10 mg/m <sup>3</sup>	Inhalable
		5 mg/m <sup>3</sup>	Respirable.
		10 mg/m <sup>3</sup>	Inhalable

**Iceland. OELs. Regulation 154/1999 on occupational exposure limits**

Material	Type	Value	Form
Titanium Dioxide Product	TWA	6 mg/m <sup>3</sup>	
<b>Components</b>	<b>Type</b>	<b>Value</b>	
Titanium oxide (TiO <sub>2</sub> ) (CAS 13463-67-7)	TWA	6 mg/m <sup>3</sup>	

**Ireland. Occupational Exposure Limits**

Material	Type	Value	Form
Titanium Dioxide Product	TWA	4 mg/m <sup>3</sup>	Respirable dust.
<b>Components</b>	<b>Type</b>	<b>Value</b>	<b>Form</b>
Titanium oxide (TiO <sub>2</sub> ) (CAS 13463-67-7)	TWA	10 mg/m <sup>3</sup>	Total inhalable dust.
		4 mg/m <sup>3</sup>	Respirable dust.
		10 mg/m <sup>3</sup>	Total inhalable dust.

**Italy. Occupational Exposure Limits**

Material	Type	Value	Form
Titanium Dioxide Product	TWA	10 mg/m <sup>3</sup>	
<b>Components</b>	<b>Type</b>	<b>Value</b>	
Titanium oxide (TiO <sub>2</sub> ) (CAS 13463-67-7)	TWA	10 mg/m <sup>3</sup>	

**Latvia. OELs. Occupational exposure limit values of chemical substances in work environment**

Material	Type	Value	Form
Titanium Dioxide Product	TWA	10 mg/m <sup>3</sup>	
<b>Components</b>	<b>Type</b>	<b>Value</b>	
Titanium oxide (TiO <sub>2</sub> ) (CAS 13463-67-7)	TWA	10 mg/m <sup>3</sup>	

**Lithuania. OELs. Limit Values for Chemical Substances, General Requirements**

Material	Type	Value
Titanium Dioxide Product	TWA	5 mg/m <sup>3</sup>
<b>Components</b>	<b>Type</b>	<b>Value</b>
Titanium oxide (TiO <sub>2</sub> ) (CAS 13463-67-7)	TWA	5 mg/m <sup>3</sup>

**Norway. Administrative Norms for Contaminants in the Workplace**

Material	Type	Value
Titanium Dioxide Product	TLV	5 mg/m <sup>3</sup>
<b>Components</b>	<b>Type</b>	<b>Value</b>
Titanium oxide (TiO <sub>2</sub> ) (CAS 13463-67-7)	TLV	5 mg/m <sup>3</sup>

**Poland. MACs. Minister of Labour and Social Policy Regarding Maximum Allowable Concentrations and Intensities in Working Environment**

Material	Type	Value	Form
Titanium Dioxide Product	STEL	30 mg/m <sup>3</sup>	
<b>Components</b>	<b>Type</b>	<b>Value</b>	<b>Form</b>
Titanium oxide (TiO <sub>2</sub> ) (CAS 13463-67-7)	TWA	10 mg/m <sup>3</sup>	Inhalable fraction.
	STEL	30 mg/m <sup>3</sup>	
	TWA	10 mg/m <sup>3</sup>	Inhalable fraction.

**Portugal. VLEs. Norm on occupational exposure to chemical agents (NP 1796)**

Material	Type	Value
Titanium Dioxide Product	TWA	10 mg/m <sup>3</sup>
<b>Components</b>	<b>Type</b>	<b>Value</b>
Titanium oxide (TiO <sub>2</sub> ) (CAS 13463-67-7)	TWA	10 mg/m <sup>3</sup>

**Romania. OELs. Protection of workers from exposure to chemical agents at the workplace**

Material	Type	Value
Titanium Dioxide Product	STEL	15 mg/m <sup>3</sup>
<b>Components</b>	<b>Type</b>	<b>Value</b>
Titanium oxide (TiO <sub>2</sub> ) (CAS 13463-67-7)	TWA	10 mg/m <sup>3</sup>
	STEL	15 mg/m <sup>3</sup>
	TWA	10 mg/m <sup>3</sup>

**Slovakia. OELs. Regulation No. 300/2007 concerning protection of health in work with chemical agents**

Material	Type	Value
Titanium Dioxide Product	TWA	5 mg/m <sup>3</sup>
<b>Components</b>	<b>Type</b>	<b>Value</b>
Titanium oxide (TiO <sub>2</sub> ) (CAS 13463-67-7)	TWA	5 mg/m <sup>3</sup>

**Spain. Occupational Exposure Limits**

Material	Type	Value
Titanium Dioxide Product	TWA	10 mg/m <sup>3</sup>
<b>Components</b>	<b>Type</b>	<b>Value</b>
Titanium oxide (TiO <sub>2</sub> ) (CAS 13463-67-7)	TWA	10 mg/m <sup>3</sup>

**Sweden. Occupational Exposure Limit Values**

Material	Type	Value	Form
Titanium Dioxide Product	TWA	5 mg/m <sup>3</sup>	Total dust.
<b>Components</b>	<b>Type</b>	<b>Value</b>	<b>Form</b>
Titanium oxide (TiO <sub>2</sub> ) (CAS 13463-67-7)	TWA	5 mg/m <sup>3</sup>	Total dust.

**Switzerland. SUVA Grenzwerte am Arbeitsplatz**

Material	Type	Value	Form
Titanium Dioxide Product	TWA	3 mg/m <sup>3</sup>	Respirable dust.

**Switzerland. SUVA Grenzwerte am Arbeitsplatz  
Components**

<b>Components</b>	<b>Type</b>	<b>Value</b>	<b>Form</b>
Titanium oxide (TiO <sub>2</sub> ) (CAS 13463-67-7)	TWA	3 mg/m <sup>3</sup>	Respirable dust.

  

<b>Material</b>	<b>Type</b>	<b>Value</b>	<b>Form</b>
Titanium Dioxide Product	TWA	4 mg/m <sup>3</sup> 10 mg/m <sup>3</sup>	Respirable. Inhalable

  

<b>Components</b>	<b>Type</b>	<b>Value</b>	<b>Form</b>
Titanium oxide (TiO <sub>2</sub> ) (CAS 13463-67-7)	TWA	4 mg/m <sup>3</sup> 10 mg/m <sup>3</sup>	Respirable. Inhalable

**Biological limit values** No biological exposure limits noted for the ingredient(s).

**Recommended monitoring procedures** Not available.

**Derived no-effect level (DNEL)** Not available.

**Predicted no effect concentrations (PNECs)** Not available.

## 8.2. Exposure controls

**Appropriate engineering controls** Not available.

### Individual protection measures, such as personal protective equipment

**Eye/face protection** Not available.

#### Skin protection

- **Hand protection** Not available.

- **Other** Not available.

**Respiratory protection** Not available.

**Thermal hazards** Not available.

**Hygiene measures** Not available.

**Environmental exposure controls** Not available.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

#### Appearance

**Physical state** Solid.

**Form** Not available.

**Colour** Not available.

**Odour** Not applicable.

**Odour threshold** Not available.

**pH** Not available.

**Melting point/freezing point** 1843 °C (3349,4 °F)

**Initial boiling point and boiling range** 2500 - 3000 °C (4532 - 5432 °F)

**Flash point** Not available.

**Evaporation rate** Not available.

**Flammability (solid, gas)** Not applicable.

#### Upper/lower flammability or explosive limits

**Flammability limit - lower (%)** Not available.

**Flammability limit - upper (%)** Not available.

**Vapour pressure** 399,97 kPa at 25 °C

**Vapour density** Not available.

**Relative density** Not available.

<b>Solubility(ies)</b>	
<b>Solubility (water)</b>	Insoluble
<b>Solubility (other)</b>	Not available.
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	Not available.
<b>Explosive properties</b>	Not available.
<b>Oxidising properties</b>	Not available.

## 9.2. Other information

<b>Density</b>	4,23 g/cm <sup>3</sup> estimated
<b>Heat of combustion (NFPA 30B)</b>	0 kJ/g
<b>Molecular formula</b>	O <sub>2</sub> -Ti
<b>Molecular weight</b>	79,9 g/mol
<b>Specific gravity</b>	4,23

## SECTION 10: Stability and reactivity

<b>10.1. Reactivity</b>	Not available.
<b>10.2. Chemical stability</b>	Not available.
<b>10.3. Possibility of hazardous reactions</b>	Not available.
<b>10.4. Conditions to avoid</b>	Not available.
<b>10.5. Incompatible materials</b>	Not available.
<b>10.6. Hazardous decomposition products</b>	Not available.

## SECTION 11: Toxicological information

<b>General information</b>	Not available.
----------------------------	----------------

### Information on likely routes of exposure

<b>Inhalation</b>	Not available.
<b>Skin contact</b>	Not available.
<b>Eye contact</b>	Not available.
<b>Ingestion</b>	Not available.

<b>Symptoms</b>	Not available.
-----------------	----------------

### 11.1. Information on toxicological effects

<b>Acute toxicity</b>	No data available.
<b>Skin corrosion/irritation</b>	Not available.
<b>Serious eye damage/eye irritation</b>	Not available.
<b>Respiratory sensitisation</b>	Not available.
<b>Skin sensitisation</b>	Not available.
<b>Germ cell mutagenicity</b>	Not available.

### Carcinogenicity

#### IARC Monographs. Overall Evaluation of Carcinogenicity

Titanium oxide (TiO<sub>2</sub>) (CAS 13463-67-7) 2B Possibly carcinogenic to humans.

<b>Reproductive toxicity</b>	Not available.
<b>Specific target organ toxicity - single exposure</b>	Not available.
<b>Specific target organ toxicity - repeated exposure</b>	Not available.
<b>Aspiration hazard</b>	Not available.
<b>Mixture versus substance information</b>	Not available.
<b>Other information</b>	Not available.

## SECTION 12: Ecological information

### 12.1. Toxicity

Product		Species	Test results
Titanium Dioxide Product			
<b>Aquatic</b>			
Crustacea	EC50	Water flea (Daphnia magna)	> 1000 mg/l, 48 hours
Fish	LC50	Mummichog (Fundulus heteroclitus)	> 1000 mg/l, 96 hours

Components		Species	Test results
Titanium oxide (TiO <sub>2</sub> ) (CAS 13463-67-7)			
<b>Aquatic</b>			
Crustacea	EC50	Water flea (Daphnia magna)	> 1000 mg/l, 48 hours
Fish	LC50	Mummichog (Fundulus heteroclitus)	> 1000 mg/l, 96 hours

**12.2. Persistence and degradability** Not available.

**12.3. Bioaccumulative potential** Not available.

**Partition coefficient n-octanol/water (log K<sub>ow</sub>)** Not available.

**Bioconcentration factor (BCF)** Not available.

**12.4. Mobility in soil** Not available.

**12.5. Results of PBT and vPvB assessment** Not a PBT or vPvB substance or mixture.

**12.6. Other adverse effects** Not available.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

**Residual waste** Not available.

**Contaminated packaging** Not available.

**EU waste code** Not available.

## SECTION 14: Transport information

### ADR

Not regulated as dangerous goods.

### RID

Not regulated as dangerous goods.

### ADN

Not regulated as dangerous goods.

### IATA

Not regulated as dangerous goods.

### IMDG

Not regulated as dangerous goods.

## SECTION 15: Regulatory information

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

#### EU regulations

**Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended**  
Not listed.

**Regulation (EC) No. 850/2004 on persistent organic pollutants, Annex I**  
Not listed.

**Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 1**  
Not listed.

**Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 2**  
Not listed.

**Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 3**  
Not listed.



**Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex V**

Not listed.

**Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended**

Not listed.

**Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA**

Not listed.

#### **Authorisations**

**Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended**

Not listed.

#### **Restrictions on use**

**Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended**

Not listed.

**Directive 92/85/EEC: on the safety and health of pregnant workers and workers who have recently given birth or are breastfeeding, as amended**

Not listed.

**Regulation (EC) No. 1907/2006 Annex XVII Substances subject to restriction on marketing and use**

Not regulated.

**Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended**

Not listed.

#### **Other EU regulations**

**Directive 2012/18/EU on major accident hazards involving dangerous substances**

Not listed.

**Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work, as amended**

Not listed.

**Directive 94/33/EC on the protection of young people at work, as amended**

Not listed.

#### **National regulations**

Not available.

#### **15.2. Chemical safety assessment**

Not available.

### **SECTION 16: Other information**

#### **Further information**

Not available.