



# SAFETY DATA SHEET

**MATERION**

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

### 1.1. Product identifier

**Trade name or designation of the mixture** Titanium oxide (TiO<sub>2</sub>)  
**Registration number** -  
**Document number** 2BL  
**Synonyms** TITANIUM OXIDE \* TITANIUM DIOXIDE DUST \* Titanium oxide (TiO<sub>2</sub>)  
**Materion Code** 2BL  
**Issue date** 22-May-2015  
**Version number** 04  
**Revision date** 15-December-2020

### 1.3. Details of the supplier of the safety data sheet

#### Supplier

**Company name** Materion Advanced Chemicals Inc.  
**Address** 407 N. 13th Street  
1316 W. St. Paul Avenue  
Milwaukee, WI 53233  
United States  
**Division** Milwaukee  
**Telephone** 414.212.0257  
**e-mail** advancedmaterials@materion.com  
**Contact person** Laura Hamilton

### 1.4. Emergency telephone number

**Supersedes date** 15-January-2018

### 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 safety data sheet

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**Company name** Materion Advanced Chemicals Inc.  
**Address** 407 N. 13th Street  
1316 W. St. Paul Avenue  
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**Contact person** Laura Hamilton

### 1.4. Emergency telephone number

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

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

**Hazard summary** Suspect cancer hazard - may cause cancer.

### 2.2. Label elements

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

**Hazard pictograms**



<b>Signal word</b>	Warning
<b>Hazard statements</b>	
H351	Suspected of causing cancer.
<b>Precautionary statements</b>	
<b>Prevention</b>	
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.
<b>Response</b>	Not available.
<b>Storage</b>	
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
<b>Disposal</b>	
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.
<b>Supplemental label information</b>	None.
<b>2.3. Other hazards</b>	None known.

## SECTION 3: Composition/information on ingredients

### 3.2. Mixtures

The components are not hazardous or are below required disclosure limits.

#### List of abbreviations and symbols that may be used above

DSD: Directive 67/548/EEC.

CLP: Regulation No. 1272/2008.

#: This substance has been assigned Union workplace exposure limit(s).

#: This substance has been assigned Community workplace exposure limit(s).

M: M-factor

PBT: persistent, bioaccumulative and toxic substance.

vPvB: very persistent and very bioaccumulative substance.

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume. \*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

## SECTION 4: First aid measures

**General information** IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

### 4.1. Description of first aid measures

**Inhalation** Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a POISON CENTRE or doctor/physician if you feel unwell.

**Skin contact** Remove and isolate contaminated clothing and shoes. For minor skin contact, avoid spreading material on unaffected skin.

**Eye contact** Do not rub eyes. Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

**Ingestion** Rinse mouth thoroughly. If ingestion of a large amount does occur, call a poison control centre immediately. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

**4.2. Most important symptoms and effects, both acute and delayed** Irritation of eyes and mucous membranes. Dusts may irritate the respiratory tract, skin and eyes. Prolonged exposure may cause chronic effects.

**4.3. Indication of any immediate medical attention and special treatment needed** Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

## SECTION 5: Firefighting measures

**General fire hazards** No unusual fire or explosion hazards noted.

### 5.1. Extinguishing media

**Suitable extinguishing media** Water fog. Foam. Dry chemical powder. Carbon dioxide (CO<sub>2</sub>).

**Unsuitable extinguishing media** None known.

**5.2. Special hazards arising from the substance or mixture** During fire, gases hazardous to health may be formed.

### 5.3. Advice for firefighters

**Special protective equipment for firefighters** Wear suitable protective equipment.

**Special firefighting procedures** Use water spray to cool unopened containers. Water runoff can cause environmental damage.

**Specific methods** Use standard firefighting procedures and consider the hazards of other involved materials.

## SECTION 6: Accidental release measures

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

**For non-emergency personnel** Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

**For emergency responders** Keep unnecessary personnel away.

### 6.2. Environmental precautions

Avoid release to the environment. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground. Contact local authorities in case of spillage to drain/aquatic environment.

### 6.3. Methods and material for containment and cleaning up

Collect spillage. Avoid the generation of dusts during clean-up. Collect dust using a vacuum cleaner equipped with HEPA filter. The product is immiscible with water and will spread on the water surface. Prevent entry into waterways, sewer, basements or confined areas. Stop the flow of material, if this is without risk.

Large Spills: Wet down with water and dike for later disposal. Shovel the material into waste container. Following product recovery, flush area with water.

Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal.

### 6.4. Reference to other sections

For personal protection, see section 8. For waste disposal, see section 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Minimise dust generation and accumulation. Provide appropriate exhaust ventilation at places where dust is formed. Avoid prolonged exposure. Wash thoroughly after handling. Avoid release to the environment. Do not empty into drains. Practice good housekeeping.

### 7.2. Conditions for safe storage, including any incompatibilities

Store locked up. Store in a cool, dry place out of direct sunlight. Store in tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

### 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 oxide (CAS 13463-67-7)	MAK	5 mg/m <sup>3</sup>	Respirable dust.
	STEL	10 mg/m <sup>3</sup>	Respirable dust.
Components	Type	Value	Form
Titanium oxide (CAS 1344-28-1)	MAK	5 mg/m <sup>3</sup>	Respirable fraction.
		5 mg/m <sup>3</sup>	Respirable fume.

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

Components	Type	Value	Form
		10 mg/m <sup>3</sup>	Inhalable fraction.
	STEL	20 mg/m <sup>3</sup>	Inhalable fraction.
		10 mg/m <sup>3</sup>	Respirable fume.
		10 mg/m <sup>3</sup>	Respirable fraction.

**Belgium. Exposure Limit Values Material**

Material	Type	Value	Form
Titanium oxide (CAS 13463-67-7)	TWA	10 mg/m <sup>3</sup>	

Components	Type	Value	Form
Titanium oxide (CAS 1344-28-1)	TWA	1 mg/m <sup>3</sup>	Respirable fraction.

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

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

Components	Type	Value	Form
Titanium oxide (CAS 1344-28-1)	TWA	3,5 mg/m <sup>3</sup>	Respirable fraction.

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

Material	Type	Value	Form
Titanium oxide (CAS 13463-67-7)	STEL	4 mg/m <sup>3</sup>	Respirable dust.

Components	Type	Value	Form
Titanium oxide (CAS 1344-28-1)	MAC	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 oxide (CAS 13463-67-7)	TWA	10 mg/m <sup>3</sup>	

**Czech Republic. OELs. Government Decree 361**

Components	Type	Value	Form
Titanium oxide (CAS 1344-28-1)	TWA	0,1 mg/m <sup>3</sup>	Respirable dust.

**Denmark. Exposure Limit Values Material**

Material	Type	Value	Form
Titanium oxide (CAS 13463-67-7)	TLV	6 mg/m <sup>3</sup>	

Components	Type	Value	Form
Titanium oxide (CAS 1344-28-1)	TLV	5 mg/m <sup>3</sup>	Total
		2 mg/m <sup>3</sup>	Respirable.

**Estonia. OELs. Occupational Exposure Limits of Hazardous Substances (Regulation No. 105/2001, Annex), as amended**

Components	Type	Value	Form
Titanium oxide (CAS 1344-28-1)	TWA	4 mg/m <sup>3</sup>	Fine dust, respiratory fraction
		10 mg/m <sup>3</sup>	Total dust.

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

Material	Type	Value
Titanium oxide (CAS 13463-67-7)	TWA	5 mg/m <sup>3</sup>

**Finland. Workplace Exposure Limits**

Material	Type	Value	Form
Titanium oxide (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
Titanium oxide (CAS 13463-67-7)	VME	10 mg/m <sup>3</sup>

Components	Type	Value
Titanium oxide (CAS 1344-28-1)	VME	10 mg/m <sup>3</sup>

**Regulatory status:** Indicative limit (VL)

**Germany. DFG MAK List (advisory OELs). Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area (DFG)**

Components	Type	Value	Form
Titanium oxide (CAS 1344-28-1)	TWA	4 mg/m <sup>3</sup>	Inhalable dust.
		1,5 mg/m <sup>3</sup>	Respirable dust.

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

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

Components	Type	Value	Form
Titanium oxide (CAS 1344-28-1)	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 oxide (CAS 13463-67-7)	TWA	5 mg/m <sup>3</sup>	Respirable.
		10 mg/m <sup>3</sup>	Inhalable

Components	Type	Value	Form
Titanium oxide (CAS 1344-28-1)	TWA	5 mg/m <sup>3</sup>	Inhalable
		10 mg/m <sup>3</sup>	Respirable.

**Hungary. OELs. Joint Decree on Chemical Safety of Workplaces**

Components	Type	Value	Form
Titanium oxide (CAS 1344-28-1)	TWA	6 mg/m <sup>3</sup>	Respirable.

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

Material	Type	Value
Titanium oxide (CAS 13463-67-7)	TWA	6 mg/m <sup>3</sup>

Components	Type	Value
Titanium oxide (CAS 1344-28-1)	TWA	10 mg/m <sup>3</sup>

**Ireland. Occupational Exposure Limits**

Material	Type	Value	Form
Titanium oxide (CAS 13463-67-7)	TWA	4 mg/m3	Respirable dust.
		10 mg/m3	Total inhalable dust.
Components	Type	Value	Form
Titanium oxide (CAS 1344-28-1)	TWA	4 mg/m3	Respirable dust.
		10 mg/m3	Total inhalable dust.

**Italy. Occupational Exposure Limits**

Material	Type	Value	Form
Titanium oxide (CAS 13463-67-7)	TWA	10 mg/m3	
Components	Type	Value	Form
Titanium oxide (CAS 1344-28-1)	TWA	1 mg/m3	Respirable fraction.

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

Material	Type	Value	Form
Titanium oxide (CAS 13463-67-7)	TWA	10 mg/m3	
Components	Type	Value	Form
Titanium oxide (CAS 1344-28-1)	TWA	6 mg/m3	Decomposition aerosol.
		4 mg/m3	

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

Material	Type	Value	Form
Titanium oxide (CAS 13463-67-7)	TWA	5 mg/m3	

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

Material	Type	Value	Form
Titanium oxide (CAS 13463-67-7)	TLV	5 mg/m3	
Components	Type	Value	Form
Titanium oxide (CAS 1344-28-1)	TLV	10 mg/m3	

**Poland. Ordinance of the Minister of Labour and Social Policy on 6 June 2014 on the maximum permissible concentrations and intensities of harmful health factors in the work environment, Journal of Laws 2014, item 817**

Material	Type	Value	Form
Titanium oxide (CAS 13463-67-7)	STEL	30 mg/m3	
	TWA	10 mg/m3	Inhalable fraction.
Components	Type	Value	Form
Titanium oxide (CAS 1344-28-1)	TWA	2,5 mg/m3	Inhalable fraction.
		1,2 mg/m3	Respirable fraction.

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

Material	Type	Value	Form
Titanium oxide (CAS 13463-67-7)	TWA	10 mg/m3	
Components	Type	Value	Form
Titanium oxide (CAS 1344-28-1)	TWA	1 mg/m3	Respirable fraction.

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

Material	Type	Value	
Titanium oxide (CAS 13463-67-7)	STEL	15 mg/m3	
	TWA	10 mg/m3	
Components	Type	Value	Form

Titanium oxide (CAS 1344-28-1)	STEL	5 mg/m3	Aerosol
	TWA	2 mg/m3	Aerosol

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

Material	Type	Value	
Titanium oxide (CAS 13463-67-7)	TWA	5 mg/m3	
Components	Type	Value	Form

Titanium oxide (CAS 1344-28-1)	TWA	4 mg/m3	Inhalable fraction.
		1,5 mg/m3	Respirable fraction.
		0,1 mg/m3	

**Slovenia. OELs. Regulations concerning protection of workers against risks due to exposure to chemicals while working (Official Gazette of the Republic of Slovenia)**

Components	Type	Value	Form
Titanium oxide (CAS 1344-28-1)	TWA	10 mg/m3	Inhalable fraction.
		1,25 mg/m3	Respirable fraction.

**Spain. Occupational Exposure Limits**

Material	Type	Value	
Titanium oxide (CAS 13463-67-7)	TWA	10 mg/m3	
Components	Type	Value	
Titanium oxide (CAS 1344-28-1)	TWA	10 mg/m3	

**Sweden. OELs. Work Environment Authority (AV), Occupational Exposure Limit Values (AFS 2015:7)**

Material	Type	Value	Form
Titanium oxide (CAS 13463-67-7)	TWA	5 mg/m3	Total dust.
Components	Type	Value	Form
Titanium oxide (CAS 1344-28-1)	TWA	5 mg/m3	Total dust.
		2 mg/m3	Respirable dust.

**Switzerland. SUVA Grenzwerte am Arbeitsplatz**

Material	Type	Value	Form	
Titanium oxide (CAS 13463-67-7)	TWA	3 mg/m3	Respirable dust.	
Components	Type	Value	Form	
Titanium oxide (CAS 1344-28-1)	STEL	24 mg/m3	Respirable dust and/or fume.	
		TWA	3 mg/m3	Respirable dust and/or fume.
			3 mg/m3	Respirable dust.

**UK. EH40 Workplace Exposure Limits (WELs)**

Material	Type	Value	Form
Titanium oxide (CAS 13463-67-7)	TWA	4 mg/m3	Respirable.
		10 mg/m3	Inhalable

**UK. EH40 Workplace Exposure Limits (WELs)**

Components	Type	Value	Form
Titanium oxide (CAS 1344-28-1)	TWA	4 mg/m <sup>3</sup>	Respirable dust.
		10 mg/m <sup>3</sup>	Inhalable dust.

**Biological limit values****Switzerland. BAT-Werte (Biological Limit Values in the Workplace as per SUVA)**

Components	Value	Determinant	Specimen	Sampling Time
Titanium oxide (CAS 1344-28-1)	60 µg/g	Aluminium	Creatinine in urine	*

\* - For sampling details, please see the source document.

**Recommended monitoring procedures** Follow standard monitoring procedures.

**Derived no effect levels (DNELs)** Not available.

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

**8.2. Exposure controls****Appropriate engineering controls**

Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. If engineering measures are not sufficient to maintain concentrations of dust particulates below the OEL (occupational exposure limit), suitable respiratory protection must be worn. If material is ground, cut, or used in any operation which may generate dusts, use appropriate local exhaust ventilation to keep exposures below the recommended exposure limits. Provide eyewash station.

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

**General information** Use personal protective equipment as required. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.

**Eye/face protection** Wear safety glasses with side shields (or goggles).

**Skin protection**

**- Hand protection** Wear appropriate chemical resistant gloves.

**- Other**

Use personal protective equipment as required. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment. Wear protective gloves.

**Respiratory protection** Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits.

**Thermal hazards** Wear appropriate thermal protective clothing, when necessary.

**Hygiene measures**

Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

**Environmental exposure controls**

Contain spills and prevent releases and observe national regulations on emissions. Environmental manager must be informed of all major releases.

**SECTION 9: Physical and chemical properties****9.1. Information on basic physical and chemical properties**

<b>Appearance</b>	Powder.
<b>Physical state</b>	Solid.
<b>Form</b>	Powder.
<b>Colour</b>	Not available.
<b>Odour</b>	Not available.
<b>Odour threshold</b>	Not available.
<b>pH</b>	Not available.
<b>Melting point/freezing point</b>	1843 °C (3349,4 °F)



<b>Initial boiling point and boiling range</b>	2500 - 3000 °C (4532 - 5432 °F)
<b>Flash point</b>	Not available.
<b>Evaporation rate</b>	Not available.
<b>Flammability (solid, gas)</b>	Not available.
<b>Upper/lower flammability or explosive limits</b>	
<b>Flammability limit - lower (%)</b>	Not available.
<b>Flammability limit - upper (%)</b>	Not available.
<b>Vapour pressure</b>	399,97 kPa at 25 °C
<b>Vapour density</b>	Not available.
<b>Relative density</b>	Not available.
<b>Solubility(ies)</b>	
<b>Solubility (water)</b>	Insoluble
<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 explosive.
<b>Oxidising properties</b>	Not oxidising.

## 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>	Material is stable under normal conditions.
<b>10.3. Possibility of hazardous reactions</b>	No dangerous reaction known under conditions of normal use.
<b>10.4. Conditions to avoid</b>	Avoid temperatures exceeding the decomposition temperature. Contact with incompatible materials.
<b>10.5. Incompatible materials</b>	Acids. Chlorine. None known.
<b>10.6. Hazardous decomposition products</b>	No hazardous decomposition products are known.

## SECTION 11: Toxicological information

**General information** Occupational exposure to the substance or mixture may cause adverse effects.

### Information on likely routes of exposure

<b>Inhalation</b>	Dust may irritate respiratory system. Prolonged inhalation may be harmful.
<b>Skin contact</b>	Dust or powder may irritate the skin. Due to lack of data the classification is not possible.
<b>Eye contact</b>	Causes eye irritation.
<b>Ingestion</b>	Due to lack of data the classification is not possible.

**Symptoms** Dusts may irritate the respiratory tract, skin and eyes.

### 11.1. Information on toxicological effects

<b>Acute toxicity</b>	May cause respiratory irritation. Not known.
<b>Skin corrosion/irritation</b>	Due to partial or complete lack of data the classification is not possible.
<b>Serious eye damage/eye irritation</b>	Causes eye irritation.
<b>Respiratory sensitisation</b>	Due to partial or complete lack of data the classification is not possible.
<b>Skin sensitisation</b>	Due to partial or complete lack of data the classification is not possible.
<b>Germ cell mutagenicity</b>	Due to partial or complete lack of data the classification is not possible.

**Carcinogenicity** Suspected of causing cancer.

**Hungary. 26/2000 EüM Ordinance on protection against and preventing risk relating to exposure to carcinogens at work (as amended)**

Not listed.

**Reproductive toxicity** Due to partial or complete lack of data the classification is not possible.

**Specific target organ toxicity - single exposure** Respiratory tract irritation.

**Specific target organ toxicity - repeated exposure** Causes damage to organs through prolonged or repeated exposure.

**Aspiration hazard** Due to partial or complete lack of data the classification is not possible.

**Mixture versus substance information** No information available.

**Other information** This product has no known adverse effect on human health.

## SECTION 12: Ecological information

**12.1. Toxicity** Accumulation in aquatic organisms is expected. May cause long lasting harmful effects to aquatic life. Contains a substance which causes risk of hazardous effects to the environment. Due to partial or complete lack of data the classification for hazardous to the aquatic environment, is not possible.

Product	Species	Test Results
Titanium oxide (CAS 13463-67-7)		
<b>Aquatic</b>		
<i>Acute</i>		
Crustacea	EC50	Water flea ( <i>Daphnia magna</i> ) > 1000 mg/l, 48 hours
Fish	LC50	Mummichog ( <i>Fundulus heteroclitus</i> ) > 1000 mg/l, 96 hours

\* Estimates for product may be based on additional component data not shown.

**12.2. Persistence and degradability** No data is available on the degradability of this product.

**12.3. Bioaccumulative potential** No data available.

**Partition coefficient n-octanol/water (log Kow)** Not available.

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

**12.4. Mobility in soil** No data available.

**12.5. Results of PBT and vPvB assessment** This mixture does not contain substances assessed to be vPvB / PBT according to Regulation (EC) No 1907/2006, Annex XIII.

**12.6. Other adverse effects** No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

**Residual waste** Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

**Contaminated packaging** Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

**EU waste code** The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.

**Disposal methods/information** Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

**Special precautions** Dispose in accordance with all applicable regulations.

## SECTION 14: Transport information

### ADR

14.1. - 14.6.: Not regulated as dangerous goods.

## **RID**

14.1. - 14.6.: Not regulated as dangerous goods.

## **ADN**

14.1. - 14.6.: Not regulated as dangerous goods.

## **IATA**

14.1. - 14.6.: Not regulated as dangerous goods.

## **IMDG**

14.1. - 14.6.: 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 (EU) 2019/1021 On persistent organic pollutants (recast), as amended**

Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended**

Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended**

Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended**

Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended**

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**

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

Not listed.

**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.

#### **Other EU regulations**

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

Not listed.

#### **Other regulations**

The product does not need to be labelled in accordance with EC directives or respective national laws. The product is classified and labelled in accordance with Regulation (EC) 1272/2008 (CLP Regulation) as amended. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006, as amended.

#### **National regulations**

Follow national regulation for work with chemical agents.

Follow national regulation for work with chemical agents in accordance with Directive 98/24/EC, as amended.

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

No Chemical Safety Assessment has been carried out.

## **SECTION 16: Other information**

### **List of abbreviations**

ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways.

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.  
AGW: Occupational threshold limit value (Arbeitsplatzgrenzwert – Germany).  
CAS: Chemical Abstract Service.  
CEN: European Committee for Standardization.  
IATA: International Air Transport Association.  
IBC: Intermediate Bulk Container.  
IMDG: International Maritime Dangerous Goods.  
MAC: Maximum Allowed Concentration.  
MARPOL: International Convention for the Prevention of Pollution from Ships.  
PBT: Persistent, bioaccumulative, toxic.  
RID: Regulations concerning the International Carriage of Dangerous Goods by Rail.  
STEL: Short term exposure limit.  
TLV: Threshold Limit Value.  
TWA: Time Weighted Average.  
VLE: Exposure Limit Value.  
VME: Exposure Average Value.  
vPvB: Very persistent and very bioaccumulative.

## References

ACGIH  
EPA: AQUIRE database  
NLM: Hazardous Substances Data Base  
US. IARC Monographs on Occupational Exposures to Chemical Agents

## Information on evaluation method leading to the classification of mixture

The classification for health and environmental hazards is derived by a combination of calculator methods and test data, if available. Not applicable.

## Revision information

This document has undergone significant changes and should be reviewed in its entirety.

## Training information

Follow training instructions when handling this material.

## Disclaimer

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