

**Titanium Ti (Sheet, Disc, Target, Tablet)**

Version 2.1

LI

SDS Number: 300000002965

Revision Date: 05.01.2017

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

Product identifier : Titanium Ti (Sheet, Disc, Target, Tablet)

Product code : 300000002965

CAS-No. : 7440-32-6

EC-No. : 231-142-3

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

Use of the Sub-  
stance/Mixture : Coating by Physical Vapor Deposition (PVD).

**1.3 Details of the supplier of the safety data sheet**

Company : Umicore Thin Film Products AG  
Alte Landstrasse 8  
9496 Balzers  
Liechtenstein

E-mail address of person  
responsible for the SDS : info.ipds@umicore.com

**1.4 Emergency telephone number****Poison Center**

Telephone : 145

Hours of operation : 24HRS

**Supplier**

Emergency telephone number : For transport in Europe, Central- and South America, Israel and Africa (Non-Arabic speaking countries): +32 3 213 15 70  
For transport in the Middle East (Israel excluded) & Arabic speaking Africa: +32 3 213 33 79  
For transport in the USA and Canada: 1-877 986 4267  
For transport in Asian and the Pacific (China excluded): +65 62 64 78 36  
For transport in China: 400 88 71 190

Hours of operation : This telephone number is available 24 hours per day, 7 days per week.

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**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture****Classification (REGULATION (EC) No 1272/2008)**

Not a hazardous substance or mixture.

**2.2 Label elements****Labelling (REGULATION (EC) No 1272/2008)**

Not a hazardous substance or mixture.

**Additional Labelling**

The following percentage of the mixture consists of ingredient(s) with unknown hazards to the aquatic environment: 100 %

**2.3 Other hazards**

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

**SECTION 3: Composition/information on ingredients****3.1 Substances**

EC-No. : 231-142-3

**Hazardous components**

| Chemical name                                | CAS-No.<br>EC-No.      | Classification<br>(REGULATION<br>(EC) No<br>1272/2008) | Concentration (% w/w) |
|----------------------------------------------|------------------------|--------------------------------------------------------|-----------------------|
| Substances with a workplace exposure limit : |                        |                                                        |                       |
| Titanium                                     | 7440-32-6<br>231-142-3 |                                                        | <= 100                |

**SECTION 4: First aid measures****4.1 Description of first aid measures**

- General advice : Do not leave the victim unattended.
- If inhaled : If symptoms persist, call a physician.  
If unconscious, place in recovery position and get medical attention immediately.
- In case of eye contact : Remove contact lenses.  
Protect unharmed eye.  
If eye irritation persists, consult a specialist.
- If swallowed : Keep respiratory tract clear.

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Do not give milk or alcoholic beverages.  
Never give anything by mouth to an unconscious person.  
If symptoms persist, call a physician.

**4.2 Most important symptoms and effects, both acute and delayed**

None known.

**4.3 Indication of any immediate medical attention and special treatment needed**

No information available.

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**SECTION 5: Firefighting measures****5.1 Extinguishing media**

Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media : High volume water jet

**5.2 Special hazards arising from the substance or mixture**

Hazardous combustion products : No hazardous combustion products are known

**5.3 Advice for firefighters**

Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary.

Further information : Standard procedure for chemical fires.  
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

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**SECTION 6: Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures**

Personal precautions : Avoid dust formation.

**6.2 Environmental precautions****6.3 Methods and material for containment and cleaning up**

Methods for cleaning up : Pick up and arrange disposal without creating dust.  
Sweep up and shovel.  
Keep in suitable, closed containers for disposal.

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**6.4 Reference to other sections****SECTION 7: Handling and storage****7.1 Precautions for safe handling**

- Advice on safe handling : For personal protection see section 8.  
Smoking, eating and drinking should be prohibited in the application area.
- Advice on protection against fire and explosion : Provide appropriate exhaust ventilation at places where dust is formed.
- Hygiene measures : General industrial hygiene practice.

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

- Requirements for storage areas and containers : Electrical installations / working materials must comply with the technological safety standards.
- Advice on common storage : No materials to be especially mentioned.
- Other data : Keep in a dry place. No decomposition if stored and applied as directed.

**7.3 Specific end use(s)****SECTION 8: Exposure controls/personal protection****8.1 Control parameters****8.2 Exposure controls****Engineering measures**

Handle only in a place equipped with local exhaust (or other appropriate exhaust).

**Personal protective equipment**

- Eye protection : Tightly fitting safety goggles
- Skin and body protection : Choose body protection according to the amount and concentration of the dangerous substance at the work place.
- Respiratory protection : No personal respiratory protective equipment normally required.

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

- Appearance : powder, tablet, Discs., sheets, granular

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|                             |                                 |
|-----------------------------|---------------------------------|
| Colour                      | : grey                          |
| Odour                       | : odourless                     |
| Melting point/range         | : 1,668 °C                      |
| Boiling point/boiling range | : 3,260 °C                      |
| Flammability (solid, gas)   | : The product is not flammable. |
| Relative density            | : 4.5                           |
| Density                     | : 4.5 g/cm <sup>3</sup> (20 °C) |
| Solubility(ies)             |                                 |
| Water solubility            | : insoluble                     |
| Auto-ignition temperature   | : not determined                |

**9.2 Other information**

No data available

**SECTION 10: Stability and reactivity****10.1 Reactivity**

Stable

**10.2 Chemical stability**

No decomposition if stored and applied as directed.

**10.3 Possibility of hazardous reactions**

Hazardous reactions : Stable under recommended storage conditions.  
No hazards to be specially mentioned.

**10.4 Conditions to avoid**

Conditions to avoid : None known.

**10.5 Incompatible materials**

Materials to avoid : None.

**10.6 Hazardous decomposition products**

Stable under normal conditions.

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**SECTION 11: Toxicological information****11.1 Information on toxicological effects****Acute toxicity****Product:**

Acute oral toxicity : Remarks: No data available

Acute inhalation toxicity : Remarks: No data available

Acute dermal toxicity : Remarks: No data available

**Components:****Titanium:**

Acute oral toxicity : Remarks: No data available

Acute inhalation toxicity : Remarks: No data available

Acute dermal toxicity : Remarks: No data available

**Skin corrosion/irritation****Product:**

Remarks: No data available

**Serious eye damage/eye irritation****Product:**

Remarks: No data available

**Respiratory or skin sensitisation****Product:**

Remarks: No data available

**Germ cell mutagenicity****Product:**

Genotoxicity in vitro : Remarks: No data available

**Carcinogenicity****Product:**

Remarks: No data available

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**Reproductive toxicity****Product:**

Effects on fertility : Remarks: No data available

**STOT - single exposure****Product:**

Remarks: No data available

**STOT - repeated exposure****Product:**

Remarks: No data available

**Further information****Product:**Remarks: No data available

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**SECTION 12: Ecological information****12.1 Toxicity****Components:****Titanium:****Ecotoxicology Assessment**

Acute aquatic toxicity : No data available

**12.2 Persistence and degradability**

No data available

**12.3 Bioaccumulative potential****Components:****Titanium:**

Bioaccumulation : Bioconcentration factor (BCF): 34 - 352

**12.4 Mobility in soil**

No data available

**12.5 Results of PBT and vPvB assessment**

Not relevant

**12.6 Other adverse effects****Product:**

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Additional ecological information : No data available

**SECTION 13: Disposal considerations****13.1 Waste treatment methods**

Product : Dispose of in accordance with the European Directives on waste and hazardous waste.  
In accordance with local and national regulations.  
According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.  
Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.

**SECTION 14: Transport information****14.1 UN number**

Not regulated as a dangerous good

**14.2 UN proper shipping name**

Not regulated as a dangerous good

**14.3 Transport hazard class(es)**

Not regulated as a dangerous good

**14.4 Packing group**

Not regulated as a dangerous good

**14.5 Environmental hazards**

Not regulated as a dangerous good

**14.6 Special precautions for user**

Not applicable

**14.7 Transport in bulk according to Annex II of Marpol and the IBC Code**

Not applicable for product as supplied.

**SECTION 15: Regulatory information****15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

The components of this product are reported in the following inventories:

CH INV : On the inventory, or in compliance with the inventory

DSL : All components of this product are on the Canadian DSL



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|       |                                                         |
|-------|---------------------------------------------------------|
| AICS  | : On the inventory, or in compliance with the inventory |
| NZIoC | : On the inventory, or in compliance with the inventory |
| ENCS  | : Not in compliance with the inventory                  |
| ISHL  | : Not in compliance with the inventory                  |
| KECI  | : On the inventory, or in compliance with the inventory |
| PICCS | : On the inventory, or in compliance with the inventory |
| IECSC | : On the inventory, or in compliance with the inventory |
| TCSI  | : On the inventory, or in compliance with the inventory |
| TSCA  | : On TSCA Inventory                                     |

**15.2 Chemical safety assessment****SECTION 16: Other information****Full text of other 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; AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature;

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SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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