



# PRODUCT INFORMATION SHEET

**MATERION**

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

### 1.1. Product identifier

**Name of the substance** TiOx Targets  
**Identification number** 257-372-4 (EC number)  
**Registration number** -  
**Document number** G47  
**Synonyms** None.  
**Issue date** 04-March-2019  
**Version number** 01

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

#### Supplier

**Company name** Materion Advanced Materials Germany GmbH  
**Address** Borsigstrasse 10  
63755 Alzenau  
DE

#### Division

**Telephone** 49.60.23.91.82.0  
**e-mail** Materion.Germany@materion.com  
**Contact person** Hermann Schmiing

**1.4. Emergency telephone number** 49.60.23.91.82.0

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

**Identified uses** Manufacture of computer, electronic and optical products, electrical equipment  
Scientific research and development  
Other: Manufacture of medical and defense equipment

**Uses advised against** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)  
Consumer uses: Private households (= general public = consumers)

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## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

The products are classified as articles and, as such, do not present a physical or health hazard in the present form. If the products are processed or handled in ways that generate particles (dust, fume, particles and/or powder), a potential health hazard could exist and risk management measures must be taken to minimize risk.

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

This mixture does not meet the criteria for classification according to Regulation (EC) 1272/2008 as amended.

#### Hazard summary

The material as sold in solid form is generally not considered hazardous. However, if the process involves grinding, melting, cutting or any other process that causes a release of dust or fumes, hazardous levels of airborne particulate could be generated.

### 2.2. Label elements

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

**Contains:** TiOx

|                                       |                                                                                                |
|---------------------------------------|------------------------------------------------------------------------------------------------|
| <b>Hazard pictograms</b>              | None.                                                                                          |
| <b>Signal word</b>                    | None.                                                                                          |
| <b>Hazard statements</b>              | The substance does not meet the criteria for classification.                                   |
| <b>Precautionary statements</b>       |                                                                                                |
| <b>Prevention</b>                     | Observe good industrial hygiene practices.                                                     |
| <b>Response</b>                       | Wash hands after handling.                                                                     |
| <b>Storage</b>                        | Store away from incompatible materials.                                                        |
| <b>Disposal</b>                       | Dispose of waste and residues in accordance with local authority requirements.                 |
| <b>Supplemental label information</b> | For further information, please contact the Product Stewardship Department at +1.216.383.4019. |
| <b>2.3. Other hazards</b>             | Not a PBT or vPvB substance or mixture.                                                        |

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

#### General information

| Chemical name          | %   | CAS-No. / EC No.        | REACH Registration No. | Index No. | Notes |
|------------------------|-----|-------------------------|------------------------|-----------|-------|
| TiOx                   | 100 | 51745-87-0<br>257-372-4 | -                      | -         |       |
| <b>Classification:</b> | -   |                         |                        |           |       |

## SECTION 4: First aid measures

#### General information

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

Move to fresh air. Call a physician if symptoms develop or persist.

##### Skin contact

Wash off with soap and water. Get medical attention if irritation develops and persists.

##### Eye contact

Rinse with water. Get medical attention if irritation develops and persists.

##### Ingestion

Rinse mouth. Get medical attention if symptoms occur.

#### 4.2. Most important symptoms and effects, both acute and delayed

Exposure may cause temporary irritation, redness, or discomfort.

#### 4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

## 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

None known.

#### 5.3. Advice for firefighters

##### Special protective equipment for firefighters

Wear suitable protective equipment.

##### Special firefighting procedures

Use water spray to cool unopened containers.

#### 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. For personal protection, see section 8 of the PIS.

|                                                                  |                                                                                                    |
|------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| <b>For emergency responders</b>                                  | Use personal protection recommended in Section 8 of the PIS.                                       |
| <b>6.2. Environmental precautions</b>                            | Avoid discharge into drains, water courses or onto the ground.                                     |
| <b>6.3. Methods and material for containment and cleaning up</b> | Stop the flow of material, if this is without risk. For waste disposal, see section 13 of the PIS. |
| <b>6.4. Reference to other sections</b>                          | For personal protection, see section 8 of the PIS. For waste disposal, see section 13 of the PIS.  |

## SECTION 7: Handling and storage

|                                                                          |                                                                      |
|--------------------------------------------------------------------------|----------------------------------------------------------------------|
| <b>7.1. Precautions for safe handling</b>                                | Avoid prolonged exposure. Observe good industrial hygiene practices. |
| <b>7.2. Conditions for safe storage, including any incompatibilities</b> | Keep locked up.                                                      |
| <b>7.3. Specific end use(s)</b>                                          | Not available.                                                       |

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

|                                                   |                                                            |
|---------------------------------------------------|------------------------------------------------------------|
| <b>Occupational exposure limits</b>               | No exposure limits noted for ingredient(s).                |
| <b>Biological limit values</b>                    | No biological exposure limits noted for the ingredient(s). |
| <b>Recommended monitoring procedures</b>          | Follow standard monitoring procedures.                     |
| <b>Derived no effect levels (DNELs)</b>           | Not available.                                             |
| <b>Predicted no effect concentrations (PNECs)</b> | Not available.                                             |

### 8.2. Exposure controls

|                                         |                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Appropriate engineering controls</b> | 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. |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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

|                               |                                                                                                                                                         |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>General information</b>    | Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment. |
| <b>Eye/face protection</b>    | Wear safety glasses with side shields (or goggles).                                                                                                     |
| <b>Skin protection</b>        |                                                                                                                                                         |
| - <b>Hand protection</b>      | Wear gloves to prevent metal cuts and skin abrasions during handling.                                                                                   |
| - <b>Other</b>                | Wear suitable protective clothing.                                                                                                                      |
| <b>Respiratory protection</b> | In case of insufficient ventilation, wear suitable respiratory equipment.                                                                               |
| <b>Thermal hazards</b>        | Wear appropriate thermal protective clothing, when necessary.                                                                                           |

|                         |                                                                                                                                                                                                                       |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Hygiene measures</b> | 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. |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                        |                                                                                                                                                                                                                                                                                                                                                           |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Environmental exposure controls</b> | 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. |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## SECTION 9: Physical and chemical properties

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

#### Appearance

|                                     |                   |
|-------------------------------------|-------------------|
| <b>Physical state</b>               | Solid.            |
| <b>Form</b>                         | Solid.            |
| <b>Colour</b>                       | Black.            |
| <b>Odour</b>                        | None.             |
| <b>Odour threshold</b>              | Not applicable.   |
| <b>pH</b>                           | Not applicable.   |
| <b>Melting point/freezing point</b> | 1825 °C (3317 °F) |

|                                                        |                 |
|--------------------------------------------------------|-----------------|
| <b>Initial boiling point and boiling range</b>         | Not applicable. |
| <b>Flash point</b>                                     | Not applicable. |
| <b>Evaporation rate</b>                                | Not applicable. |
| <b>Flammability (solid, gas)</b>                       | None known.     |
| <b>Upper/lower flammability or explosive limits</b>    |                 |
| <b>Explosive limit - lower ( %)</b>                    | Not applicable. |
| <b>Explosive limit - lower ( %)</b> <b>temperature</b> | Not applicable. |
| <b>Explosive limit – upper ( %)</b>                    | Not applicable. |
| <b>Explosive limit - upper ( %)</b> <b>temperature</b> | Not applicable. |
| <b>Vapour pressure</b>                                 | Not applicable. |
| <b>Vapour pressure temp.</b>                           | Not applicable. |
| <b>Vapour density</b>                                  | Not applicable. |
| <b>Relative density</b>                                | Not applicable. |
| <b>Solubility(ies)</b>                                 |                 |
| <b>Solubility (water)</b>                              | Insoluble.      |
| <b>Partition coefficient (n-octanol/water)</b>         | Not applicable. |
| <b>Auto-ignition temperature</b>                       | Not applicable. |
| <b>Decomposition temperature</b>                       | Not applicable. |
| <b>Viscosity</b>                                       | Not applicable. |
| <b>Explosive properties</b>                            | Not explosive.  |
| <b>Oxidising properties</b>                            | Not oxidising.  |

## 9.2. Other information

|                    |                        |
|--------------------|------------------------|
| <b>Density</b>     | 3,90 g/cm <sup>3</sup> |
| <b>Explosivity</b> | Not applicable.        |

## SECTION 10: Stability and reactivity

|                                                 |                                                                                               |
|-------------------------------------------------|-----------------------------------------------------------------------------------------------|
| <b>10.1. Reactivity</b>                         | The product is stable and non-reactive under normal conditions of use, storage and transport. |
| <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>                | Contact with incompatible materials.                                                          |
| <b>10.5. Incompatible materials</b>             | Ammonia. Chlorine.                                                                            |
| <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>   | Not likely, due to the form of the product.                                                                         |
| <b>Skin contact</b> | No adverse effects due to skin contact are expected.                                                                |
| <b>Eye contact</b>  | Not relevant, due to the form of the product.                                                                       |
| <b>Ingestion</b>    | May cause discomfort if swallowed. However, ingestion is not likely to be a primary route of occupational exposure. |

**Symptoms** None known.

### 11.1. Information on toxicological effects

|                                          |                               |
|------------------------------------------|-------------------------------|
| <b>Acute toxicity</b>                    | None known.                   |
| <b>Skin corrosion/irritation</b>         | Not classified.               |
| <b>Serious eye damage/eye irritation</b> | None known.                   |
| <b>Respiratory sensitisation</b>         | Not a respiratory sensitizer. |

|                                                           |                           |
|-----------------------------------------------------------|---------------------------|
| <b>Skin sensitisation</b>                                 | Not a skin sensitiser.    |
| <b>Germ cell mutagenicity</b>                             | Not classified.           |
| <b>Carcinogenicity</b>                                    | Not classified.           |
| <b>Reproductive toxicity</b>                              | Not classified.           |
| <b>Specific target organ toxicity - single exposure</b>   | Not classified.           |
| <b>Specific target organ toxicity - repeated exposure</b> | Not classified.           |
| <b>Aspiration hazard</b>                                  | Not an aspiration hazard. |
| <b>Mixture versus substance information</b>               | No information available. |
| <b>Other information</b>                                  | Not available.            |

## SECTION 12: Ecological information

|                                                        |                                                                                                                                                                                         |
|--------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>12.1. Toxicity</b>                                  | Based on available data, the classification criteria are not met for hazardous to the aquatic environment.                                                                              |
| <b>12.2. Persistence and degradability</b>             | No data is available on the degradability of any ingredients in the mixture.                                                                                                            |
| <b>12.3. Bioaccumulative potential</b>                 | No data available.                                                                                                                                                                      |
| <b>Partition coefficient n-octanol/water (log Kow)</b> | Not available.                                                                                                                                                                          |
| <b>Bioconcentration factor (BCF)</b>                   | Not available.                                                                                                                                                                          |
| <b>12.4. Mobility in soil</b>                          | No data available.                                                                                                                                                                      |
| <b>12.5. Results of PBT and vPvB assessment</b>        | Not a PBT or vPvB substance or mixture.                                                                                                                                                 |
| <b>12.6. Other adverse effects</b>                     | 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

|                                     |                                                                                                                                                                                                                  |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Residual waste</b>               | 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). |
| <b>Contaminated packaging</b>       | 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.       |
| <b>EU waste code</b>                | The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.                                                                                                   |
| <b>Disposal methods/information</b> | Collect and reclaim or dispose in sealed containers at licensed waste disposal site.                                                                                                                             |
| <b>Special precautions</b>          | 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 (EC) No. 850/2004 On persistent organic pollutants, Annex I 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.

#### **National regulations**

Not available.

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

Not available.

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

#### **List of abbreviations**

Not available.

#### **References**

Not available.

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

Not applicable.

#### **Full text of any H-statements not written out in full under Sections 2 to 15**

None.

#### **Revision information**

None.

#### **Training information**

Follow training instructions when handling this material.

#### **Disclaimer**

This document has been prepared using data from sources considered to be technically reliable and the information is believed to be correct. Materion makes no warranties, expressed or implied, as to the accuracy of the information contained herein. Materion cannot anticipate all conditions under which this information and its products may be used and the actual conditions of use are beyond its control. The user is responsible to evaluate all available information when using this product for any particular use and to comply with all Federal, State, Provincial and Local laws, statutes and regulations.

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