



# MATERIAL SAFETY DATA SHEET

**MATERION**

## 1. Chemical product and company identification

**A. Product name** Tantalum Targets

**Other means of identification**

SDS number G66

**B. Recommended use and Limitations on use**

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

**Limitations on use** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)  
Consumer uses: Private households (= general public = consumers)

**C. Supplier information**

**Company name** Materion Advanced Materials Germany GmbH

**Address** Borsigstrasse 10  
Alzenau 63755  
Germany

**Email** Materion.Germany@materion.com

**Contact person** Hermann Schmiing

**Emergency telephone number** 49.60.23.91.82.0

**Importer**

**Company name** See above.

**MSDS number** G66

## 2. Hazards identification

**A. Hazard category/Classification**

**Physical hazards** Not classified.

**Health hazards** Specific target organ toxicity, single exposure Category 3 respiratory tract irritation

**Environmental hazards** Not classified.

**B. Warning label items including precautionary statement**

• **Pictogram**



• **Signal word** Warning

• **Hazard statement**

H335 May cause respiratory irritation.

• **Precautionary statement**

**Prevention**

Observe good industrial hygiene practices.  
P261 Avoid breathing dust.  
P264 Wash thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.

**Response**

P304 + P340 If inhaled: Remove person to fresh air and keep comfortable for breathing.  
P312 Call a poison center/doctor if you feel unwell.

**Storage**

P405 Store locked up.

**Disposal**

P501 Dispose of contents/container (in accordance with related regulations).

**C. Other hazards not included in the hazard category criteria (e.g. dust explosion hazard)** None known.

**Supplemental information** For further information, please contact the Product Stewardship Department at +1.216.383.4019.

### 3. Composition/information on ingredients

Chemical identity	Common and alternative names	CAS number	ID number	Content in percent (%)
Tantalum		7440-25-7	KE-33006	100

### 4. First aid measures

- A. In case of eye contact** Do not rub eyes. Rinse with water. Get medical attention if irritation develops and persists.
- B. In case of skin contact** Wash off with soap and water. Get medical attention if irritation develops and persists.
- C. In case of inhalation** Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a poison center or doctor/physician if you feel unwell.
- D. In case of swallowing** Rinse mouth. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Get medical advice/attention if you feel unwell.
- E. Note to physician** Provide general supportive measures and treat symptomatically. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
- Most important symptoms/effects, acute and delayed** None known.
- General advice** 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. Show this safety data sheet to the doctor in attendance.

### 5. Fire-fighting measures

- A. Suitable (and unsuitable) extinguishing media**
- Suitable extinguishing media** Dry powder. Dry sand.
  - Unsuitable extinguishing media** Carbon dioxide (CO<sub>2</sub>).
- B. Specific hazards arising from the chemical (example: hazardous combustion products)** This product is not flammable.
- C. Specific methods of fire-fighting**
- Special protective equipment for firefighters** Use protective equipment appropriate for surrounding materials.
  - Special fire fighting procedures** Move containers from fire area if you can do so without risk.
- General fire hazards** No unusual fire or explosion hazards noted.
- Specific methods** Use standard firefighting procedures and consider the hazards of other involved materials.

### 6. Accidental release measures

- A. Personal precautions, protective equipment and emergency measures** Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Avoid inhalation of dust. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the MSDS.
- B. Environmental precautions** Avoid discharge into drains, water courses or onto the ground.

### C. Methods and materials for containment and cleaning up

Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Collect dust using a vacuum cleaner equipped with HEPA filter. The product is immiscible with water and will spread on the water surface. Stop the flow of material, if this is without risk.

Large Spills: Wet down with water and dike for later disposal. Absorb in vermiculite, dry sand or earth and place into containers. 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. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the MSDS.

## 7. Handling and storage

### A. Precautions for safe handling

Minimize dust generation and accumulation. Provide appropriate exhaust ventilation at places where dust is formed. Do not taste or swallow. Avoid breathing dust. Avoid prolonged exposure. When using, do not eat, drink or smoke. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices.

### B. Conditions for safe storage (including any incompatibilities)

Store away from incompatible materials (see Section 10 of the MSDS).

## 8. Exposure controls/personal protection

### A. Exposure limit values, biological limit values, etc

#### Korea. OELs. Standards for Exposure to Chemical Substances and Physically Hazardous Factors

Material	Type	Value	Form
Tantalum Targets	TWA	5 mg/m3	Fume.
Components	Type	Value	Form
Tantalum (CAS 7440-25-7)	TWA	5 mg/m3	Fume.

### Biological limit values

No biological exposure limits noted for the ingredient(s).

### B. 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 Occupational Exposure Limit (OEL), 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.

### C. Personal protective equipment

- **Respiratory protection** In case of insufficient ventilation, wear suitable respiratory equipment.
- **Eye protection** Wear approved safety glasses, goggles, face shield and/or welder's helmet when risk of eye injury is present, particularly during operations that generate dust, mist or fume.
- **Hand protection** Wear gloves to prevent metal cuts and skin abrasions during handling.
- **Body protection** Wear suitable protective clothing.

### Hygiene measures

Keep away from food and drink. 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.

## 9. Physical and chemical properties

### A. Appearance

Physical state	Solid.
Form	Powder.
Color	Dark grey.

### B. Odor

None.

### C. Odor threshold

Not applicable.

### D. pH

Not applicable.

<b>E. Melting point/freezing point</b>	
Melting point	5424.8 °F (2996 °C)
Freezing point	Not applicable.
<b>F. Boiling point, initial boiling point, and boiling range</b>	Not applicable.
<b>G. Flash point</b>	Not applicable.
<b>H. Evaporation rate</b>	Not applicable.
<b>I. Flammability (solid, gas)</b>	Not applicable.
<b>J. Upper/lower limit on flammability or explosive limits</b>	
Flammability limit - lower (%)	Not applicable.
Flammability limit - upper (%)	Not applicable.
Explosive limit - lower (%)	Not applicable.
Explosive limit - upper (%)	Not applicable.
<b>K. Vapor pressure</b>	Not applicable.
<b>L. Solubility</b>	
Solubility (water)	Insoluble
<b>M. Vapor density</b>	Not applicable.
<b>N. Specific gravity</b>	14.49
<b>O. n-octanol/water partition coefficient</b>	Not applicable.
<b>P. Auto-ignition temperature</b>	Not applicable.
<b>Q. Decomposition temperature</b>	Not applicable.
<b>R. Viscosity</b>	Not applicable.
<b>S. Molecular weight</b>	180.95 g/mol
<b>Other data</b>	
Density	14.49 g/cm <sup>3</sup>
Explosive properties	Not explosive.
Flammability	Not applicable.
Molecular formula	Ta
Oxidizing properties	Not oxidizing.
Relative density	Not applicable.

## 10. Stability and reactivity

<b>Reactivity</b>	The product is stable and non-reactive under normal conditions of use, storage and transport.
<b>A. Stability and hazardous reaction potential</b>	
Stability	Material is stable under normal conditions.
Hazardous reaction potential	No dangerous reaction known under conditions of normal use.
<b>B. Conditions to avoid (e.g. static discharge, shock or vibration, etc)</b>	Contact with incompatible materials.
<b>C. Incompatible materials</b>	Strong oxidizing agents. Fluorine.
<b>D. Hazardous decomposition products</b>	No hazardous decomposition products are known.

## 11. Toxicological information

<b>A. Information on likely routes of exposure</b>	
• Respiratory organs	May cause damage to organs by inhalation.
• Skin	Not likely, due to the form of the product.
• Eyes	Not relevant, due to the form of the product.
• Mouth	Expected to be a low ingestion hazard.

## B. Information on health hazards

- Acute toxicity (list all possible routes of exposure) None known.
- Corrosivity or irritation to the skin Not likely, due to the form of the product.
- Serious eye damage/eye irritation None known.
- Respiratory sensitization Not a respiratory sensitizer.
- Skin sensitization This product is not expected to cause skin sensitization.
- Carcinogenic properties /Carcinogenicity Not classifiable as to carcinogenicity to humans.
- Mutagenic properties /Mutagenicity Not classified.
- Reproductive toxicity This product is not expected to cause reproductive or developmental effects.
- Specific target organ toxicity - single exposure May cause respiratory irritation.
- Specific target organ toxicity - repeated exposure Not classified.
- Aspiration hazard Not an aspiration hazard.

## 12. Ecological information

### A. Ecotoxicity

The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

#### Hazardous to the aquatic environment, acute hazard

The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

### B. Persistence/degradability

No data is available on the degradability of this substance.

### C. Bioaccumulative potential

No data available.

### D. Mobility in soil

The product is immiscible with water and will spread on the water surface.

### E. 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.

## 13. Disposal considerations

### A. Method of disposal

Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container (in accordance with related regulations).

### B. Disposal considerations (including disposal of contaminated containers or 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.

### Waste code

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

## 14. Transport information

### IATA

- A. UN number Not applicable.
- B. UN proper shipping name Not applicable.
- C. Transport hazard class(es)
  - Class Not applicable.
  - Subsidiary risk -
- D. Packing group Not applicable.
- E. Environmental hazards No.
- F. Special precautions for user Not applicable.

### IMDG

- A. UN number Not applicable.
- B. UN proper shipping name Not applicable.

**C. Transport hazard class(es)**

**Class** Not applicable.

**Subsidiary risk** -

**D. Packing group** Not applicable.

**E. Environmental hazards**

**Marine pollutant** No.

**EmS** Not applicable.

**F. Special precautions for user** Not applicable.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** Not applicable.

**15. Regulatory information**

**A. Restrictions under the Industrial Safety and Health Law**

**Harmful Substances Prohibited from Manufacturing**

Not regulated.

**Harmful Substances Requiring Permission for Manufacture or Use**

Not regulated.

**Controlled Hazardous Substances**

Not regulated.

**Harmful Substances Requiring Special Medical Examination**

Not regulated.

**Workplace Environmental Monitoring Harmful Materials**

Not regulated.

**Occupational Exposure Limit**

Tantalum (CAS 7440-25-7)

**B. Restrictions under the Chemicals Control Law (Previously Toxic Chemicals Control Law)**

**Accidental Release Prevention Substances**

Not regulated.

**Act on the Registration and Evaluation of Chemicals**

**Banned Toxic Chemicals**

Not regulated.

**Designated Existing Chemicals Subject to Registration (PEC) (MoE No. 2015-92)**

Not listed.

**Restricted Chemical Substances**

Not regulated.

**Toxic Chemicals**

Not regulated.

**C. Restrictions under the Dangerous Substance Safety Management Act**

**D. Restrictions under the Wastes Control Act**

**Halogenated Materials in Waste Organic Solvents**

Not regulated.

**Hazardous Substances**

Not regulated.

**E. Restrictions under other foreign or domestic laws**

**Clean Air Conservation Act**

**Air Pollutants**

Tantalum (CAS 7440-25-7)

**Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides (Rules on PIC, MoE No. 2014-252, Dec. 31, 2014; Standards for Pesticides, RDA No. 2014-26), as amended**

Not listed.

## Specific Air Pollutants

Not regulated.

### Further information

This material safety data sheet was prepared in accordance with Article 41 of the Industrial Safety and Health Law.

### Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Korea	Existing Chemicals List (ECL)	Yes

\*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

## 16. Other information

### Bibliography

ACGIH  
EPA: ACQUIRE database  
NLM: Hazardous Substances Data Base  
US. IARC Monographs on Occupational Exposures to Chemical Agents  
Korea. Accidental Release Prevention Substances (Presidential Decree of Toxic Chemical Control Law, Executive Order No. 19203)  
Korea. Dangerous Substances Threshold Quantity (Presidential Decree of Dangerous Substances Safety Management Act No. 18406, Schedule 1)  
Korea. Harmful Substances Prohibited from Manufacturing (Presidential Decree on the Industrial Safety and Health Act (No. 13053), Article 29)  
Korea. Harmful Substances Requiring Permission for Manufacture or Use (Presidential Decree on the Industrial Safety and Health Act (No. 13053), Article 30)  
Korea. OELs. Regulation for Permitted Concentration of Hazardous Substances (Ministry of Labor (MOL) Public Notice No. 1986-45, as amended)  
Korea. Prohibited Chemical Substances (TCCL Article 11)  
Korea. Regulated volatile organic compounds (VOCs) (MOE Notice No. 2001-36, March 8, 2001, as amended)  
Korea. Restricted Chemical Substances (TCCL Article 11)  
Korea. Toxic Chemical Control Law (TCCL), Existing Chemicals Inventory (KECI)  
Korea. Toxic Chemical Control Law (TCCL), pre-1997 List  
Korea. Toxic Chemicals (TCCL Article 10)  
Korea. Toxic Release Inventory (TRI) Chemicals (TCCL Article 14)  
Korea. Accidental Release Prevention Substances (Pres. Decree of Toxic Chemical Control Law, Ex. Order No. 19203, Tables 2 & 3, Dec 28, 2005)  
Korea. OELs (ISHL Article 42; MOL Public Notice No. 1986-45, as amended through MOEL Notice 2013-38, August 14, 2013)  
Korea. Prohibited Chemical Substances (AREC "K-REACH" Article 27; Designation of Toxic, Restricted or Banned Chemicals Appendices 4 and 5)  
Korea. Restricted Chemical Substances (AREC "K-REACH" Article 27; Designation of Toxic, Restricted or Banned Chemicals Appendices 2 and 3)  
KECI, January 27, 2015, amended through MoE 2016-138, July 13, 2016  
Korea. Toxic Chemicals (AREC "K-REACH" Article 20; Designation of Toxic, Restricted or Banned Chemicals Appendix 1)  
Korea. Toxic Release Inventory (TRI) Chemicals (MOE Public Notice No. 2002-166, Nov. 8, 2002)

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