

Material Safety Data Sheet

According to OSHA and ANSI

Printing date 05/28/2011

Reviewed on 11/10/2010

1 Identification of the substance/mixture and of the company/undertaking**Product identifier****Product name:** Tantalum sputtering target**Stock number:** 40897**CAS Number:**

7440-25-7

EINECS Number:

231-135-5

Relevant identified uses of the substance or mixture and uses advised against.**Sector of Use** SU24 Scientific research and development**Details of the supplier of the safety data sheet****Manufacturer/Supplier:**

Alfa Aesar, A Johnson Matthey Company

Johnson Matthey Catalog Company, Inc.

30 Bond Street

Ward Hill, MA 01835-8099

Tel: 800-343-0660

Fax: 800-322-4757

Email: tech@alfa.com

www.alfa.com

Information Department: Health, Safety and Environmental Department**Emergency telephone number:**

During normal hours the Health, Safety and Environmental Department at (800) 343-0660. After normal hours call Carechem 24 at (866) 928-0789.

2 Hazards identification**Classification of the substance or mixture**

The substance is not classified according to the Globally Harmonized System (GHS).

Classification according to Directive 67/548/EEC or Directive 1999/45/EC Not applicable**Information concerning particular hazards for human and environment:** Not applicable
-----**Label elements****Labelling according to EU guidelines:**

Observe the general safety regulations when handling chemicals

Classification system**HMIS ratings (scale 0-4)****(Hazardous Materials Identification System)**

HEALTH	0	Health (acute effects) = 0
FIRE	0	Flammability = 0
REACTIVITY	0	Reactivity = 0

Other hazards**Results of PBT and vPvB assessment****PBT:** Not applicable.**vPvB:** Not applicable.**3 Composition/information on ingredients****Chemical characterization: Substances****(CAS#) Description:**

Tantalum (CAS# 7440-25-7)

Identification number(s):**EINECS Number:** 231-135-5**4 First aid measures****Description of first aid measures****General information** No special measures required.**After inhalation** Seek medical treatment in case of complaints.**After skin contact** Generally the product does not irritate the skin.**After eye contact**

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

After swallowing Seek medical treatment.**Information for doctor****Most important symptoms and effects, both acute and delayed**

No further relevant information available.

(Contd. on page 2)

- USA -

Material Safety Data Sheet

According to OSHA and ANSI

Printing date 05/28/2011

Reviewed on 11/10/2010

Product name: Tantalum sputtering target

(Contd. of page 1)

Indication of any immediate medical attention and special treatment needed
No further relevant information available.

5 Firefighting measures**Extinguishing media**

Suitable extinguishing agents Special powder for metal fires. Do not use water.

For safety reasons unsuitable extinguishing agents Water

Special hazards arising from the substance or mixture

In case of fire, the following can be released:

Metal oxide fume

Advice for firefighters

Protective equipment: No special measures required.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures Not required.

Environmental precautions:

Do not allow material to be released to the environment without proper governmental permits.

Methods and material for containment and cleaning up: Pick up mechanically.

Reference to other sections

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 Handling and storage**Handling****Precautions for safe handling**

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Information about protection against explosions and fires: No special measures required.

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

Requirements to be met by storerooms and receptacles: No special requirements.

Information about storage in one common storage facility: Not required.

Further information about storage conditions: None.

Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

Additional information about design of technical systems: No further data; see item 7.

Control parameters

Components with limit values that require monitoring at the workplace:

Tantalum

	mg/m ³
ACGIH TLV	5
Austria MAK	5
Belgium TWA	5
Denmark TWA	5
Finland TWA	5
France VME	5
Germany MAK	5
Ireland TWA	5; 10-STEL
Korea TLV	5
Netherlands MAC-TGG	5
Poland TWA	5
Russia	10-STEL
Switzerland MAK-W	5
United Kingdom TWA	5; 10-STEL
USA PEL	5

Additional information: No data

Exposure controls**Personal protective equipment****General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.

Breathing equipment: Not required.

Protection of hands: Not required.

(Contd. on page 3)

USA

Material Safety Data Sheet

According to OSHA and ANSI

Printing date 05/28/2011

Reviewed on 11/10/2010

Product name: Tantalum sputtering target

(Contd. of page 2)

Eye protection: Safety glasses
 Body protection: Protective work clothing.

9 Physical and chemical properties**Information on basic physical and chemical properties****General Information****Appearance:**

Form:	Target
Color:	Grey
Odor:	Odorless
Odour threshold:	Not determined.

pH-value:	Not applicable.
-----------	-----------------

Change in condition

Melting point/Melting range:	2996°C (5425 °F)
Boiling point/Boiling range:	5425°C (9797 °F)
Sublimation temperature / start:	Not determined

Flammability (solid, gaseous)	Not determined.
-------------------------------	-----------------

Ignition temperature:	Not determined
-----------------------	----------------

Decomposition temperature:	Not determined
----------------------------	----------------

Auto igniting:	Not determined.
----------------	-----------------

Danger of explosion:	Product does not present an explosion hazard.
----------------------	---

Explosion limits:

Lower:	Not determined
Upper:	Not determined

Vapor pressure:	Not applicable.
-----------------	-----------------

Density at 20°C (68 °F):	16.6 g/cm ³ (138.527 lbs/gal)
--------------------------	--

Relative density	Not determined.
------------------	-----------------

Vapour density	Not applicable.
----------------	-----------------

Evaporation rate	Not applicable.
------------------	-----------------

Solubility in / Miscibility with Water:	Insoluble
--	-----------

Segregation coefficient (n-octanol/water):	Not determined.
--	-----------------

Viscosity:

dynamic:	Not applicable.
kinematic:	Not applicable.

Other information	No further relevant information available.
-------------------	--

10 Stability and reactivity**Reactivity****Chemical stability****Thermal decomposition / conditions to be avoided:**

Decomposition will not occur if used and stored according to specifications.

Possibility of hazardous reactions No dangerous reactions known

Conditions to avoid No further relevant information available.

Incompatible materials: No further relevant information available.

Hazardous decomposition products: Metal oxide fume

11 Toxicological information**Information on toxicological effects****Acute toxicity:****Primary irritant effect:**

on the skin: Powder: irritant effect

on the eye: Powder: irritant effect

Sensitization: No sensitizing effects known.

Subacute to chronic toxicity:

Tantalum dust has caused transient inflammatory lesions in the lungs of animals.

Additional toxicological information:

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

(Contd. on page 4)

USA

Material Safety Data Sheet

According to OSHA and ANSI

Printing date 05/28/2011

Reviewed on 11/10/2010

Product name: Tantalum sputtering target

(Contd. of page 3)

The Registry of Toxic Effects of Chemical Substances (RTECS) contains tumorigenic and/or carcinogenic and/or neoplastic data for components in this product.
No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

12 Ecological information**Toxicity****Acquatic toxicity:** No further relevant information available.**Persistence and degradability** No further relevant information available.**Behavior in environmental systems:****Bioaccumulative potential** No further relevant information available.**Mobility in soil** No further relevant information available.**Additional ecological information:****General notes:**

Do not allow material to be released to the environment without proper governmental permits.

Results of PBT and vPvB assessment**PBT:** Not applicable.**vPvB:** Not applicable.**Other adverse effects** No further relevant information available.**13 Disposal considerations****Waste treatment methods****Recommendation** Consult state, local or national regulations to ensure proper disposal.**Uncleaned packagings:****Recommendation:** Disposal must be made according to official regulations.**14 Transport information**

Not a hazardous material for transportation.

DOT regulations:**Hazard class:** None**Land transport ADR/RID (cross-border)****ADR/RID class:** None**Maritime transport IMDG:****IMDG Class:** None**Marine pollutant:** No**Air transport ICAO-TI and IATA-DGR:****ICAO/IATA Class:** None**Special precautions for user** Not applicable.**Transport/Additional information:** Not dangerous according to the above specifications.**Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.**15 Regulatory information****Safety, health and environmental regulations/legislation specific for the substance or mixture****Product related hazard informations:**

Observe the general safety regulations when handling chemicals

National regulations

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

All components of this product are listed on the Canadian Domestic Substances List (DSL).

Information about limitation of use: For use only by technically qualified individuals.**Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.**16 Other information**

(Contd. on page 5)

USA

Material Safety Data Sheet

According to OSHA and ANSI

Printing date 05/28/2011

Reviewed on 11/10/2010

Product name: Tantalum sputtering target

(Contd. of page 4)

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing MSDS: Health, Safety and Environmental Department.

Contact:

Zachariah C. Holt
Global EHS Manager

Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

EINECS: European Inventory of Existing Commercial Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

HMIS: Hazardous Materials Identification System (USA)

USA