



SAFETY DATA SHEET

MATERION

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

1.1. Product identifier

Name of the substance Titanium Product
Identification number 7440-32-6 (CAS number)
Synonyms None.
Document number W91, WTP
Issue date 28-April-2015
Version number 02
Revision date 07-July-2015
Supersedes date 28-April-2015

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

Supplier

Company name Materion Advanced Materials Technologies and Services Inc.
Address 2978 Main Street
Buffalo, NY 14214
United States
Division Buffalo
Telephone 716-837-1000
e-mail Not available.
Contact person Not available.

1.4. Emergency telephone number 800-424-9300 Chemtrec

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Directive 67/548/EEC or 1999/45/EC as amended

Classification F;R11

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

Physical hazards
Flammable solids Category 2 H228 - Flammable solid.

Hazard summary

Physical hazards Highly flammable.
Health hazards Not classified for health hazards.
Environmental hazards Not classified for hazards to the environment.
Specific hazards Not available.

2.2. Label elements

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

Contains: Titanium
Hazard pictograms None.
Signal word Warning
Hazard statements
H228 Flammable solid.

Precautionary statements

Prevention
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ventilating/lighting equipment.

P280

Wear protective gloves/eye protection/face protection.

Response

P370 + P378

In case of fire: Use appropriate media for extinction.

Storage

Not available.

Disposal

Not available.

Supplemental label information

None.

2.3. Other hazards

None known.

SECTION 3: Composition/information on ingredients

3.1. Substances

General information

| Chemical name | % | CAS-No. / EC No. | REACH Registration No. | INDEX No. | Notes |
|------------------------|-----------------|------------------------|------------------------|-----------|-------|
| Titanium | 99 - 99,9 | 7440-32-6 231-142-3 | - | - | |
| Classification: | DSD: R10 | | | | |
| | CLP: - | | | | |

SECTION 4: First aid measures

General information

Not available.

4.1. Description of first aid measures

Inhalation

Not available.

Skin contact

Not available.

Eye contact

Not available.

Ingestion

Not available.

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

Not available.

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

Not available.

SECTION 5: Firefighting measures

General fire hazards

Not available.

5.1. Extinguishing media

Suitable extinguishing media

Not available.

Unsuitable extinguishing media

Not available.

5.2. Special hazards arising from the substance or mixture

Not available.

5.3. Advice for firefighters

Special protective equipment for firefighters

Not available.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Not available.

For emergency responders

Not available.

6.2. Environmental precautions

Not available.

6.3. Methods and material for containment and cleaning up Not available.

6.4. Reference to other sections Not available.

SECTION 7: Handling and storage

7.1. Precautions for safe handling Not available.

7.2. Conditions for safe storage, including any incompatibilities Not available.

7.3. Specific end use(s) Not available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

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

| Material | Type | Value |
|-------------------|-------------|---------------------|
| Titanium Product | TWA | 1 mg/m ³ |
| Components | Type | Value |

Titanium (CAS 7440-32-6) TWA 1 mg/m³

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

| Material | Type | Value |
|-------------------|-------------|----------------------|
| Titanium Product | TWA | 10 mg/m ³ |
| Components | Type | Value |

Titanium (CAS 7440-32-6) TWA 10 mg/m³

Poland. MACs. Minister of Labour and Social Policy Regarding Maximum Allowable Concentrations and Intensities in Working Environment

| Material | Type | Value |
|-------------------|-------------|----------------------|
| Titanium Product | STEL | 30 mg/m ³ |
| | TWA | 10 mg/m ³ |
| Components | Type | Value |

Titanium (CAS 7440-32-6) STEL 30 mg/m³
TWA 10 mg/m³

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

| Material | Type | Value |
|-------------------|-------------|----------------------|
| Titanium Product | STEL | 15 mg/m ³ |
| | TWA | 10 mg/m ³ |
| Components | Type | Value |

Titanium (CAS 7440-32-6) STEL 15 mg/m³
TWA 10 mg/m³

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

Recommended monitoring procedures Not available.

Derived no-effect level (DNEL) Not available.

Predicted no effect concentrations (PNECs) Not available.

8.2. Exposure controls

Appropriate engineering controls Not available.

Individual protection measures, such as personal protective equipment

Eye/face protection Not available.

Skin protection

- **Hand protection** Not available.

- **Other** Not available.

Respiratory protection Not available.

| | |
|--|----------------|
| Thermal hazards | Not available. |
| Hygiene measures | Not available. |
| Environmental exposure controls | Not available. |

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

| | |
|---|--------------------------------------|
| Physical state | Solid. |
| Form | Not available. |
| Colour | Not available. |
| Odour | Not applicable. |
| Odour threshold | Not available. |
| pH | Not available. |
| Melting point/freezing point | 1668 °C (3034,4 °F) |
| Initial boiling point and boiling range | 3287 °C (5948,6 °F) |
| Flash point | Not available. |
| Evaporation rate | Not available. |
| Flammability (solid, gas) | Not applicable. |
| Upper/lower flammability or explosive limits | |
| Flammability limit - lower (%) | Not available. |
| Flammability limit - upper (%) | Not available. |
| Vapour pressure | < 0,0000001 kPa at 25 °C |
| Vapour density | Not available. |
| Relative density | Not available. |
| Solubility(ies) | |
| Solubility (water) | Not available. |
| Solubility (other) | Not available. |
| Partition coefficient (n-octanol/water) | Not available. |
| Auto-ignition temperature | 250 °C (482 °F) 1200 °C (2192 °F) |
| Decomposition temperature | Not available. |
| Viscosity | Not available. |
| Explosive properties | Not available. |
| Oxidizing properties | Not available. |

9.2. Other information

| | |
|--------------------------|----------------------------------|
| Density | 4,51 g/cm ³ estimated |
| Molecular formula | Ti |
| Molecular weight | 47,9 g/mol |
| Specific gravity | 4,51 at 20 °C |

SECTION 10: Stability and reactivity

| | |
|---|----------------|
| 10.1. Reactivity | Not available. |
| 10.2. Chemical stability | Not available. |
| 10.3. Possibility of hazardous reactions | Not available. |
| 10.4. Conditions to avoid | Not available. |
| 10.5. Incompatible materials | Not available. |
| 10.6. Hazardous decomposition products | Not available. |

SECTION 11: Toxicological information

| | |
|----------------------------|----------------|
| General information | Not available. |
|----------------------------|----------------|

Information on likely routes of exposure

| | |
|---------------------|----------------|
| Inhalation | Not available. |
| Skin contact | Not available. |
| Eye contact | Not available. |
| Ingestion | Not available. |

Symptoms Not available.

11.1. Information on toxicological effects

| | |
|---|--------------------|
| Acute toxicity | No data available. |
| Skin corrosion/irritation | Not available. |
| Serious eye damage/eye irritation | Not available. |
| Respiratory sensitisation | Not available. |
| Skin sensitisation | Not available. |
| Germ cell mutagenicity | Not available. |
| Carcinogenicity | Not available. |
| Reproductive toxicity | Not available. |
| Specific target organ toxicity - single exposure | Not available. |
| Specific target organ toxicity - repeated exposure | Not available. |
| Aspiration hazard | Not available. |
| Mixture versus substance information | Not available. |
| Other information | Not available. |

SECTION 12: Ecological information

| | |
|--|---|
| 12.1. Toxicity | No toxicity data noted for the ingredient(s). |
| 12.2. Persistence and degradability | Not available. |
| 12.3. Bioaccumulative potential | Not available. |
| Partition coefficient n-octanol/water (log Kow) | Not available. |
| Bioconcentration factor (BCF) | Not available. |
| 12.4. Mobility in soil | Not available. |
| 12.5. Results of PBT and vPvB assessment | Not a PBT or vPvB substance or mixture. |
| 12.6. Other adverse effects | Not available. |

SECTION 13: Disposal considerations

13.1. Waste treatment methods

| | |
|-------------------------------|----------------|
| Residual waste | Not available. |
| Contaminated packaging | Not available. |
| EU waste code | Not available. |

SECTION 14: Transport information

ADR

| | |
|---|--|
| 14.1. UN number | UN1352 |
| 14.2. UN proper shipping name | TITANIUM POWDER, WETTED with not less than 25% water |
| 14.3. Transport hazard class(es) | |
| Class | 4.1 |
| Subsidiary risk | - |
| Label(s) | 4.1 |
| Hazard No. (ADR) | 40 |
| Tunnel restriction code | E |

14.4. Packing group II
14.5. Environmental hazards No.
14.6. Special precautions for user Not available.

RID

14.1. UN number UN1352
14.2. UN proper shipping name TITANIUM POWDER, WETTED with not less than 25% water
14.3. Transport hazard class(es)
Class 4.1
Subsidiary risk -
Label(s) 4.1
14.4. Packing group II
14.5. Environmental hazards No.
14.6. Special precautions for user Not available.

ADN

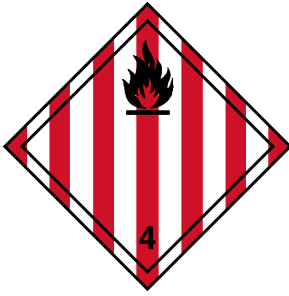
14.1. UN number UN1352
14.2. UN proper shipping name Titanium Powder, [with not less than 25% water]
14.3. Transport hazard class(es)
Class 4.1
Subsidiary risk -
Label(s) 4.1
14.4. Packing group II
14.5. Environmental hazards No.
14.6. Special precautions for user Not available.

IATA

14.1. UN number UN1352
14.2. UN proper shipping name Titanium powder, wetted with 25% or more water (a visible excess of water must be present) (a) mechanically produced: particle size less than 53 microns; (b) chemically produced: particle size less than 840 microns
14.3. Transport hazard class(es)
Class 4.1
Subsidiary risk -
14.4. Packing group II
14.5. Environmental hazards No.
ERG Code 3L
14.6. Special precautions for user Not available.
Other information
Passenger and cargo aircraft Allowed.
Cargo aircraft only Allowed.

IMDG

14.1. UN number UN1352
14.2. UN proper shipping name TITANIUM POWDER, WETTED with not less than 25% water (a visible excess of water must be present) (a) mechanically produced, having a particle size less than 53 microns; (b) chemically produced, having a particle size less than 840 microns
14.3. Transport hazard class(es)
Class 4.1
Subsidiary risk -
14.4. Packing group II
14.5. Environmental hazards
Marine pollutant No.
EmS F-A, S-J
14.6. Special precautions for user Not available.



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, as amended

Not listed.

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex II, as amended

Not listed.

Regulation (EC) No. 850/2004 on persistent organic pollutants, Annex I

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 1

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 2

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 3

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex V

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.

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

Not listed.

Restrictions on use

Regulation (EC) No. 1907/2006 Annex XVII Substances subject to restriction on marketing and use

Not regulated.

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.

Directive 92/85/EEC: on the safety and health of pregnant workers and workers who have recently given birth or are breastfeeding, as amended

Not listed.

Other EU regulations

Directive 2012/18/EU on major accident hazards involving dangerous substances

Not listed.

Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work, as amended

Not listed.

Directive 94/33/EC on the protection of young people at work, 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 available. |
| Full text of any statements or R-phrases and H-statements under Sections 2 to 15 | R10 Flammable. R11 Highly flammable. |
| Revision information | None. |
| Training information | Not available. |