



# PRODUCT INFORMATION SHEET

**MATERION**

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

### 1.1. Product identifier

|   |                           |
|---|---------------------------|
| <b>Trade name or designation of the mixture</b> | Niobium Zirconium Targets |
| <b>Registration number</b>                      | -                         |
| <b>Document number</b>                          | G65                       |
| <b>Synonyms</b>                                 | None.                     |
| <b>Issue date</b>                               | 27-February-2020          |
| <b>Version number</b>                           | 02                        |
| <b>Revision date</b>                            | 23-September-2021         |
| <b>Supersedes date</b>                          | 27-February-2020          |

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

|                             |  |
|-----------------------------|--|
| <b>Identified uses</b>      | Manufacture of computer, electronic and optical products, electrical equipment<br>Scientific research and development<br>Other: Manufacture of medical and defense equipment |
| <b>Uses advised against</b> | Professional uses: Public domain (administration, education, entertainment, services, craftsmen)<br>Consumer uses: Private households (= general public = consumers)         |

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

#### Supplier

|                       |  |
|-----------------------|--|
| <b>Company name</b>   | Materion Advanced Materials  |
| <b>Address</b>        | 6070 Parkland Boulevard<br>Mayfield Heights, OH 44124<br>United States |
| <b>Division</b>       |  |
| <b>Telephone</b>      | 1.216.383.4019   |
| <b>e-mail</b>         | ehs@materion.com   |
| <b>Contact person</b> | Theodore Knudson   |

### 1.4. Emergency telephone number

See Section 16.

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

The mixture has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

#### 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** Not classified for health hazards. However, occupational exposure to the mixture or substance(s) may cause adverse health effects.

### 2.2. Label elements

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

|                          |   |
|--------------------------|---|
| <b>Contains:</b>         | Niobium   |
| <b>Hazard pictograms</b> | None.   |
| <b>Signal word</b>       | None.   |
| <b>Hazard statements</b> | 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. |

#### Precautionary statements

|                   |  |
|-------------------|--|
| <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. |

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

**2.3. Other hazards** Not a PBT or vPvB substance or mixture.

## SECTION 3: Composition/information on ingredients

### 3.2. Mixtures

#### General information

| Chemical name | %       | CAS-No. / EC No.       | REACH Registration No. | Index No. | Notes |
|---------------|---------|------------------------|------------------------|-----------|-------|
| Niobium       | 45 - 55 | 7440-03-1<br>231-113-5 | -                      | -         |       |

**Classification:** -

Other components below reportable levels 45 - 55

## 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

Dry powder. Dry sand.

##### Unsuitable extinguishing media

Water.

#### 5.2. Special hazards arising from the substance or mixture

This product is not flammable.

#### 5.3. Advice for firefighters

##### Special protective equipment for firefighters

Wear suitable protective equipment.

##### Special firefighting procedures

Use standard firefighting procedures and consider the hazards of other involved materials.

#### Specific methods

Move containers from fire area if you can do so without risk. 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.

##### For emergency responders

Keep unnecessary personnel away. Use personal protection recommended in Section 8 of the PIS.

#### 6.2. Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

#### 6.3. Methods and material for containment and cleaning up

Stop the flow of material, if this is without risk. Following product recovery, flush area with water.

#### 6.4. Reference to other sections

For personal protection, see section 8 of the PIS. For waste disposal, see section 13 of the PIS.

## SECTION 7: Handling and storage

- 7.1. Precautions for safe handling** Observe good industrial hygiene practices.
- 7.2. Conditions for safe storage, including any incompatibilities** Store away from incompatible materials (see Section 10 of the PIS).
- 7.3. Specific end use(s)** Not available.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### Occupational exposure limits

##### Austria. MAK List, OEL Ordinance (GwV), BGBl. II, no. 184/2001

| Components   | Type | Value                 | Form                      |
|--|------|-----------------------|---------------------------|
| Niobium (CAS 7440-03-1)                                | MAK  | 5 mg/m <sup>3</sup>   | Inhalable fraction.       |
|  |      | 0,5 mg/m <sup>3</sup> | Fume and respirable dust. |
|  | STEL | 10 mg/m <sup>3</sup>  | Inhalable fraction.       |
| ZIRCONIUM POWDER, DRY (NON PYROPHORIC) (CAS 7440-67-7) | MAK  | 1 mg/m <sup>3</sup>   | Fume and respirable dust. |
|  |      | 5 mg/m <sup>3</sup>   | Inhalable fraction.       |

##### Belgium. Exposure Limit Values

| Components   | Type | Value                |
|--|------|----------------------|
| ZIRCONIUM POWDER, DRY (NON PYROPHORIC) (CAS 7440-67-7) | STEL | 10 mg/m <sup>3</sup> |
|  | TWA  | 5 mg/m <sup>3</sup>  |

##### Croatia. Dangerous Substance Exposure Limit Values in the Workplace (ELVs), Annexes 1 and 2, Narodne Novine, 13/09

| Components   | Type | Value                |
|--|------|----------------------|
| ZIRCONIUM POWDER, DRY (NON PYROPHORIC) (CAS 7440-67-7) | MAC  | 5 mg/m <sup>3</sup>  |
|  | STEL | 10 mg/m <sup>3</sup> |

##### Cyprus. OELs. Control of factory atmosphere and dangerous substances in factories regulation, PI 311/73, as amended.

| Components   | Type | Value               |
|--|------|---------------------|
| ZIRCONIUM POWDER, DRY (NON PYROPHORIC) (CAS 7440-67-7) | TWA  | 5 mg/m <sup>3</sup> |

##### Denmark. Exposure Limit Values

| Components              | Type | Value                 | Form  |
|-------------------------|------|-----------------------|-------|
| Niobium (CAS 7440-03-1) | TLV  | 5 mg/m <sup>3</sup>   | Dust. |
|                         |      | 0,5 mg/m <sup>3</sup> | Fume. |

##### Finland. Workplace Exposure Limits

| Components   | Type | Value               |
|--|------|---------------------|
| ZIRCONIUM POWDER, DRY (NON PYROPHORIC) (CAS 7440-67-7) | TWA  | 1 mg/m <sup>3</sup> |

##### Germany. TRGS 900, Limit Values in the Ambient Air at the Workplace

| Components   | Type | Value               | Form                |
|--|------|---------------------|---------------------|
| ZIRCONIUM POWDER, DRY (NON PYROPHORIC) (CAS 7440-67-7) | AGW  | 1 mg/m <sup>3</sup> | Inhalable fraction. |

**Greece. OELs (Decree No. 90/1999, as amended)**

| Components   | Type | Value                |
|--|------|----------------------|
| ZIRCONIUM POWDER, DRY<br>(NON PYROPHORIC) (CAS<br>7440-67-7) | STEL | 10 mg/m <sup>3</sup> |
|  | TWA  | 5 mg/m <sup>3</sup>  |

**Hungary. OELs. Joint Decree on Chemical Safety of Workplaces**

| Components   | Type | Value                |
|--|------|----------------------|
| ZIRCONIUM POWDER, DRY<br>(NON PYROPHORIC) (CAS<br>7440-67-7) | STEL | 20 mg/m <sup>3</sup> |
|  | TWA  | 5 mg/m <sup>3</sup>  |

**Iceland. OELs. Regulation 154/1999 on occupational exposure limits**

| Components   | Type | Value                 | Form  |
|--|------|-----------------------|-------|
| Niobium (CAS 7440-03-1)                                      | TWA  | 5 mg/m <sup>3</sup>   | Dust. |
|  |      | 0,5 mg/m <sup>3</sup> | Fume. |
| ZIRCONIUM POWDER, DRY<br>(NON PYROPHORIC) (CAS<br>7440-67-7) | TWA  | 5 mg/m <sup>3</sup>   |       |

**Italy. Occupational Exposure Limits**

| Components   | Type | Value                |
|--|------|----------------------|
| ZIRCONIUM POWDER, DRY<br>(NON PYROPHORIC) (CAS<br>7440-67-7) | STEL | 10 mg/m <sup>3</sup> |
|  | TWA  | 5 mg/m <sup>3</sup>  |

**Lithuania. OELs. Limit Values for Chemical Substances, General Requirements**

| Components   | Type | Value               |
|--|------|---------------------|
| ZIRCONIUM POWDER, DRY<br>(NON PYROPHORIC) (CAS<br>7440-67-7) | TWA  | 6 mg/m <sup>3</sup> |

**Poland. Ordinance of the Minister of Labour and Social Policy on 6 June 2014 on the maximum permissible concentrations and intensities of harmful health factors in the work environment, Journal of Laws 2014, item 817**

| Components   | Type | Value                |
|--|------|----------------------|
| ZIRCONIUM POWDER, DRY<br>(NON PYROPHORIC) (CAS<br>7440-67-7) | STEL | 10 mg/m <sup>3</sup> |
|  | TWA  | 5 mg/m <sup>3</sup>  |

**Portugal. VLEs. Norm on occupational exposure to chemical agents (NP 1796)**

| Components   | Type | Value                |
|--|------|----------------------|
| ZIRCONIUM POWDER, DRY<br>(NON PYROPHORIC) (CAS<br>7440-67-7) | STEL | 10 mg/m <sup>3</sup> |
|  | TWA  | 5 mg/m <sup>3</sup>  |

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

| Components   | Type | Value                |
|--|------|----------------------|
| ZIRCONIUM POWDER, DRY<br>(NON PYROPHORIC) (CAS<br>7440-67-7) | STEL | 10 mg/m <sup>3</sup> |
|  | TWA  | 5 mg/m <sup>3</sup>  |

**Slovakia. OELs. Regulation No. 300/2007 concerning protection of health in work with chemical agents**

| Components   | Type | Value               |
|--|------|---------------------|
| ZIRCONIUM POWDER, DRY<br>(NON PYROPHORIC) (CAS<br>7440-67-7) | TWA  | 1 mg/m <sup>3</sup> |

**Slovenia. OELs. Regulations concerning protection of workers against risks due to exposure to chemicals while working (Official Gazette of the Republic of Slovenia)**

| Components   | Type | Value               | Form                |
|--|------|---------------------|---------------------|
| ZIRCONIUM POWDER, DRY (NON PYROPHORIC) (CAS 7440-67-7) | TWA  | 1 mg/m <sup>3</sup> | Inhalable fraction. |

**Spain. Occupational Exposure Limits**

| Components   | Type | Value                |
|--|------|----------------------|
| ZIRCONIUM POWDER, DRY (NON PYROPHORIC) (CAS 7440-67-7) | STEL | 10 mg/m <sup>3</sup> |
|  | TWA  | 5 mg/m <sup>3</sup>  |

**Switzerland. SUVA Grenzwerte am Arbeitsplatz**

| Components   | Type | Value               | Form                |
|--|------|---------------------|---------------------|
| ZIRCONIUM POWDER, DRY (NON PYROPHORIC) (CAS 7440-67-7) | TWA  | 5 mg/m <sup>3</sup> | Inhalable fraction. |

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

**Recommended monitoring procedures** Follow standard monitoring procedures.

**Derived no effect levels (DNELs)** Not available.

**Predicted no effect concentrations (PNECs)** Not available.

**8.2. Exposure controls**

**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.

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

**General information** Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.

**Eye/face 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.

**Skin protection**

- **Hand protection** Wear gloves to prevent metal cuts and skin abrasions during handling.

- **Other** Wear suitable protective clothing.

**Respiratory protection** In case of insufficient ventilation, wear suitable respiratory equipment.

**Thermal hazards** Wear appropriate thermal protective clothing, when necessary.

**Hygiene measures** 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.

**Environmental exposure 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.

**SECTION 9: Physical and chemical properties**

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

**Appearance**

**Physical state** Solid.

**Form** Solid.

**Colour** Grayish-white

**Odour** None.

**Odour threshold** Not applicable.

**pH** Not applicable.

**Melting point/freezing point** 1857 °C (3374,6 °F) estimated / Not applicable.

|   |                 |
|---|-----------------|
| <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>Flammability limit - lower (%)</b>               | Not applicable. |
| <b>Flammability limit - lower (%) temperature</b>   | Not applicable. |
| <b>Flammability limit - upper (%)</b>               | Not applicable. |
| <b>Flammability limit - upper (%) temperature</b>   | Not applicable. |
| <b>Explosive limit - lower (%)</b>                  | Not applicable. |
| <b>Explosive limit - lower (%) temperature</b>      | Not applicable. |
| <b>Explosive limit – upper (%)</b>                  | Not applicable. |
| <b>Explosive limit - upper (%) temperature</b>      | Not applicable. |
| <b>Vapour pressure</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.  |
| <b>9.2. Other information</b>                       |                 |
| <b>Density</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>             | Strong oxidising agents.  |
| <b>10.6. Hazardous decomposition products</b>   | No hazardous decomposition products are known.  |

## SECTION 11: Toxicological information

|   |  |
|---|--|
| <b>General information</b>                        | Occupational exposure to the substance or mixture may cause adverse effects. |
| <b>Information on likely routes of exposure</b>   |  |
| <b>Inhalation</b>                                 | No adverse effects due to inhalation are expected.                           |
| <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>                                  | Expected to be a low ingestion hazard.                                       |
| <b>Symptoms</b>                                   | None known.  |
| <b>11.1. Information on toxicological effects</b> |  |

|  |   |
|--|---|
| <b>Acute toxicity</b>                    | None known.                                 |
| <b>Skin corrosion/irritation</b>         | Not likely, due to the form of the product. |
| <b>Serious eye damage/eye irritation</b> | Not likely, due to the form of the product. |
| <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.                             |

**Hungary. 26/2000 EüM Ordinance on protection against and preventing risk relating to exposure to carcinogens at work (as amended)**

Not listed.

|   |                           |
|---|---------------------------|
| <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>                                  | 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>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 (EU) 2019/1021 On persistent organic pollutants (recast), 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.

#### Other regulations

The product is classified and labelled in accordance with Regulation (EC) 1272/2008 (CLP Regulation) as amended.

#### National regulations

Follow national regulation for work with chemical agents in accordance with Directive 98/24/EC, as amended.

#### 15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out.

## SECTION 16: Other information

#### List of abbreviations

Not available.

#### References

Not available.

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

The classification for health and environmental hazards is derived by a combination of calculator methods and test data, if available.

#### Training information

Follow training instructions when handling this material.



**Further information**

Transportation Emergency  
Call Chemtrec at:  
International: 703.741.5970  
Spain: 900.868.538  
Switzerland: 0800.564.402  
Chemtrec's toll free, mobile-enabled number in Germany – 0800 1817059

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