



# SAFETY DATA SHEET

**MATERION**

## 1. Identification of the chemical and information about the manufacturer or supplier

### 1.1 Identification of the chemical products

1.1.1 Technical name            **Zirconium Dioxide Targets**

#### Other means of identification

SDS number                    G64

CAS number                    1314-23-4

### 1.1.2 Recommended use of the chemical and restrictions on use

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

**Limitations on use**            None known.

### 1.2 Manufacturer/Importer/Supplier/Distributor information

#### 1.2.1 Manufacturer

## 2. Hazard(s) identification

### 2.1. Hazard identification of chemical product as a whole (classification according to GOST 12.1.007-76 and GHS)

**Classification according to GOST 12.1.007-76**            Class 4 (low-hazard substance)

#### GHS classification

**Physical hazards**                    Not classified.

**Health hazards**                    Not classified.

**Environmental hazards**            Not classified.

### 2.2 Labeling elements in compliance with GOST 31340-2013

2.2.1 Signal word                    None.

2.2.2 Symbols                        None.

2.2.3 Hazard statement            The substance does not meet the criteria for classification.

#### Precautionary statement

**Prevention**                        Observe good industrial hygiene practices.

**Response**                         Wash hands after handling.

**Storage**                          Store away from incompatible materials.

**Disposal**                         Dispose of waste and residues in accordance with local authority requirements.

**Other hazards**                    None known.

#### Supplemental information

100% of the substance consists of component(s) of unknown acute oral toxicity. 100% of the substance consists of component(s) of unknown acute dermal toxicity. 100% of the substance consists of component(s) of unknown acute hazards to the aquatic environment. 100% of the substance consists of component(s) of unknown long-term hazards to the aquatic environment. For further information, please contact the Product Stewardship Department at +1.216.383.4019.

## 3. Composition/information on ingredients

### 3.1 Information on product as a whole

3.1.1 Chemical name            Zirconium Dioxide Targets  
(IUPAC)

3.1.2 Chemical formula            O<sub>2</sub>Zr (1314-23-4)

3.1.3 General description of the composition (taking into account the brand assortment; preparation method)            Not applicable.

### 3.2 Components

| Components                | Hygienic standards in the working area |            |               |                          |           | CAS-No.   | EC No. |
|---------------------------|--|------------|---------------|--------------------------|-----------|-----------|--------|
|                           | Concentration<br>by weight (%)         | MAC, mg/m3 | TSEL, mg/m3   | Hazard<br>classification |           |           |        |
| Zirconium Dioxide Targets | 100                                    | None.      | 6<br>Aerosol. | 4                        | 1314-23-4 | 215-227-2 |        |

Class 4 (low-hazard substance)

## 4. First-aid measures

### 4.1. Observed symptoms

- 4.1.1 In case of exposure via inhalation No adverse effects due to inhalation are expected.
- 4.1.2 In contact with skin Due to lack of data the classification is not possible.
- 4.1.3 In contact with eyes Due to lack of data the classification is not possible.
- 4.1.4 In case of exposure via ingestion Due to lack of data the classification is not possible.

### 4.2 First-aid measures to be provided to victims

- 4.2.1 In case of exposure via inhalation Move to fresh air. Call a physician if symptoms develop or persist.
- 4.2.2 In contact with skin Get medical attention if irritation develops and persists.
- 4.2.3 In contact with eyes Rinse with water. Get medical attention if irritation develops and persists.
- 4.2.4 In case of exposure via ingestion Get medical advice/attention if you feel unwell.
- 4.2.5 Contraindications Not available.

### General advice

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

## 5. Fire-fighting and explosion safety measures and means

- 5.1 General characteristics of fire-explosion properties No unusual fire or explosion hazards noted.
- 5.2 Fire-explosion indicators Not available.
- 5.3 Combustion and/or thermal destruction products and hazards arising from these No unusual fire or explosion hazards noted.
- 5.4 Recommended extinguishing media Water fog. Foam. Dry chemical powder. Carbon dioxide (CO<sub>2</sub>).
- 5.5 Forbidden extinguishing media None known.
- 5.6 Special protective equipment for firefighters Wear suitable protective equipment.
- 5.7 Specific extinguishing methods Use standard firefighting procedures and consider the hazards of other involved materials.
- Special fire fighting procedures Use water spray to cool unopened containers.

## 6. Accident and emergency prevention and response measures and their consequences

### 6.1 Measures to prevent harmful effects on people, environment, buildings, constructions, etc. in case of accidents and emergencies

- 6.1.1 General required actions in case of an accident or emergency Keep unnecessary personnel away. For personal protection, see section 8 of the SDS.
- 6.1.2 Personal protection equipment in case of the accident Keep unnecessary personnel away.

### 6.2 Procedures for the elimination of accidents and emergencies

- 6.2.1 Procedures in case of leaks, spills, splashes Not available.

|  |  |
|--|--|
| <b>6.2.2 Actions in case of fire</b>                         | Not available.   |
| <b>Methods and materials for containment and cleaning up</b> | The product is immiscible with water and will sediment in water systems. Stop the flow of material, if this is without risk. Following product recovery, flush area with water. For waste disposal, see section 13 of the SDS. |
| <b>Environmental precautions</b>                             | No special environmental precautions required.   |

## 7. Storage and handling requirements of chemicals during loading and unloading

### 7.1 Safety precautions when handling chemical products

|  |                               |
|--|-------------------------------|
| <b>7.1.1 Technical safety measures</b>                           | No specific recommendations.  |
| <b>7.1.2 Environmental protection measures</b>                   | Use care in handling/storage. |
| <b>7.1.3 Recommended safe handling and transportation advice</b> | Avoid prolonged exposure.     |
| <b>Local and general ventilation</b>                             | Provide adequate ventilation. |

### 7.2 Chemical storage requirements

|  |   |
|--|---|
| <b>7.2.1 Terms and conditions for safe storage</b> | Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS). |
| <b>7.2.2 Packaging</b>                             | Store in original tightly closed container.   |

### 7.3 Safety measures and storage requirements at domestic use

No specific recommendations. The product is not intended for domestic use.

## 8. Equipment for monitoring exposure and personal protective equipment

### 8.1 Parameters of the working area that require monitoring

#### Occupational exposure limits

Hygiene Norm GN 2.2.5.1313-03. Executive No. 76 of 30 April 2003. Maximum allowable concentration (MAC) of harmful substances in the air of working zones, as amended

| Material                                  | Type | Value               | Form     |
|---|------|---------------------|----------|
| Zirconium Dioxide Targets (CAS 1314-23-4) | TWA  | 6 mg/m <sup>3</sup> | Aerosol. |

### 8.2 Measures to ensure the content of harmful substances in the working area below the exposure level concentration

Not available.

#### 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.

### 8.3 Worker personal protective equipment

|  |   |
|--|---|
| <b>8.3.1 General recommendations</b>                               | Use personal protective equipment as required.                            |
| <b>8.3.2 Respiratory protection</b>                                | In case of insufficient ventilation, wear suitable respiratory equipment. |
| <b>8.3.3 Protective equipment</b>                                  |   |
| <b>Eye/face protection</b>   | Wear safety glasses with side shields (or goggles).                       |
| <b>Hand protection</b>   | Wear appropriate chemical resistant gloves.                               |
| <b>Other</b>   | Wear suitable protective clothing.  |
| <b>Thermal hazards</b>   | Wear appropriate thermal protective clothing, when necessary.             |
| <b>8.3.4 Personal protection equipment in case of domestic use</b> | The product is not intended for domestic use.                             |

#### General hygiene considerations

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

### 9.1 Physical appearance

|                |        |
|----------------|--------|
| Physical state | Solid. |
| Form           | Solid. |
| Color          | Grey.  |

Odor None.

Odor threshold Not applicable.

### 9.2 Parameters characterizing basic properties of the product

|   |                                     |
|---|-------------------------------------|
| pH                                      | Not applicable.                     |
| Melting point/freezing point            | 4892 °F (2700 °C) / Not applicable. |
| Initial boiling point and boiling range | Not applicable.                     |
| Flash point                             | Not applicable.                     |
| Auto-ignition temperature               | Not applicable.                     |
| Decomposition temperature               | Not applicable.                     |

#### Upper/lower flammability or explosive limits

|                                |                 |
|--------------------------------|-----------------|
| Flammability limit - lower (%) | Not applicable. |
| Flammability limit - upper (%) | Not applicable. |
| Explosive limit - lower (%)    | Not applicable. |
| Explosive limit - upper (%)    | Not applicable. |

Vapor pressure Not applicable.

Vapor density Not applicable.

Density Not available.

Viscosity Not applicable.

#### Solubility(ies)

Solubility (water) Insoluble.

Partition coefficient (n-octanol/water) Not applicable.

#### Other data

|                                   |                    |
|-----------------------------------|--------------------|
| Explosive properties              | Not explosive.     |
| Flammability                      | Not applicable.    |
| Evaporation rate                  | Not applicable.    |
| Flammability (solid, gas)         | Not applicable.    |
| Molecular formula                 | O2Zr               |
| Molecular weight                  | 123,22 g/mol       |
| Oxidizing properties              | Not oxidizing.     |
| Partition coefficient (oil/water) | Not applicable.    |
| Relative density                  | 5,89 g/ml at 25 °C |

## 10. Stability and reactivity

10.1 Chemical stability Material is stable under normal conditions.

Hazardous decomposition products No hazardous decomposition products are known.

10.2 Reactivity The product is stable and non-reactive under normal conditions of use, storage and transport.

10.3 Conditions to avoid Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. Contact with incompatible materials.

Possibility of hazardous reactions No dangerous reaction known under conditions of normal use.

Incompatible materials            None known.

## 11. Toxicological information

11.1 General exposure characteristics            None known.

11.2 Routes of exposure            Not available.

### 11.3 Affected/target organs, tissues and systems of humans

Specific target organ toxicity - single exposure            Not classified.

Specific target organ toxicity - repeated exposure            Not classified.

### 11.4 Information on health hazards in case of direct exposure to the product and its effect

Effect on upper respiratory tract irritation            Not available.

#### Respiratory or skin sensitization

Hygiene Norm GN 2.2.5.1313-03. Executive No. 76 of 30 April 2003. Maximum allowable concentration (MAC) of harmful substances in the air of working zones, as amended

Not listed.

Respiratory sensitization            Not a respiratory sensitizer.

Skin sensitization            Not a skin sensitizer.

Skin corrosion/irritation            Due to lack of data the classification is not possible.

Serious eye damage/eye irritation            Due to lack of data the classification is not possible.

Aspiration hazard            Due to lack of data the classification is not possible.

### 11.5 Information on long-term hazardous health effects

Carcinogenicity            Not classifiable as to carcinogenicity to humans.

Reproductive toxicity            Not classified.

Mutagenicity            Not classified.

Cumulativeness            Not available.

Chronic effects            Not available.

11.6 Acute toxicity data            Not known.

Further information            This product has no known adverse effect on human health.

## 12. Environmental impact information

12.1 General description of the impact on the environment            Not classified as an environmental hazard.

12.2 Routes of exposure to environment            Adverse effects may be caused by large spill in the environment as a result of accidents during transportation, storage, use, handling, depressurization of the container or/and the uncontrolled waste disposal.

### 12.3 The most important characteristics of the environmental impact

12.3.1 Hygienic standards            Not available.

12.3.2 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.

#### 12.3.3 Biomigration and transformation of the environment due to the biodegradation or other processes

Persistence and degradability            No data is available on the degradability of this product.

Bioaccumulative potential            No data available.

Mobility in soil            No data available.

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. Recommendations for waste (residues) disposal

|   |  |
|---|--|
| <b>13.1 Safety precautions when handling the waste generated during use, storage, transportation</b>                      | Collect and reclaim or dispose in sealed containers at licensed waste disposal site.   |
| <b>13.2 Information on the location and disposal methods, recycling or disposal of product waste, including packaging</b> | Dispose in accordance with all applicable regulations.   |
| <b>13.3 Recommendation on the waste disposal generated during its domestic use</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>Waste from residues / unused products</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). |

### 14. Transport information

#### ADR

Not regulated as dangerous goods.

#### IATA

Not regulated as dangerous goods.

#### IMDG

Not regulated as dangerous goods.

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

### 15. National and international regulatory information

#### 15.1 National legislation

**15.1.1 Laws of the Russian Federation** On technical regulation.  
On sanitary and epidemiological welfare of the population.  
On Environmental Protection.  
On Air Protection.

#### 15.1.2 Information about the documentation, regulatory requirements for the protection of human health and environment

**Sanitary-Epidemiological Rules, 1.2.2353-08, Chemical substances, mixtures and products which are carcinogenic factors, 21 April 2008**

Not listed.

**Hygiene Norm GN 2.2.5.1313-03. Executive No. 76 of 30 April 2003. Maximum allowable concentration (MAC) of harmful substances in the air of working zones, as amended**

Zirconium Dioxide Targets (CAS 1314-23-4) Aerosol with fibrogenic action.  
Slightly hazardous.

#### 15.2 International Conventions and Agreements

##### Stockholm Convention

Not applicable.

##### Rotterdam Convention

Not applicable.

##### Montreal Protocol

Not applicable.

##### Kyoto protocol

Not applicable.

##### Basel Convention

Not applicable.

#### International Inventories

| Country(s) or region | Inventory name                                     | On inventory (yes/no)* |
|----------------------|--|------------------------|
| Australia            | Australian Inventory of Chemical Substances (AICS) | Yes                    |
| Canada               | Domestic Substances List (DSL)                     | Yes                    |

| Country(s) or region        | Inventory name   | On inventory (yes/no)* |
|-----------------------------|--|------------------------|
| Canada                      | Non-Domestic Substances List (NDSL)                                    | No                     |
| China                       | Inventory of Existing Chemical Substances in China (IECSC)             | Yes                    |
| Europe                      | European Inventory of Existing Commercial Chemical Substances (EINECS) | Yes                    |
| Europe                      | European List of Notified Chemical Substances (ELINCS)                 | No                     |
| Japan                       | Inventory of Existing and New Chemical Substances (ENCS)               | Yes                    |
| Korea                       | Existing Chemicals List (ECL)  | Yes                    |
| New Zealand                 | New Zealand Inventory  | Yes                    |
| Philippines                 | Philippine Inventory of Chemicals and Chemical Substances (PICCS)      | Yes                    |
| Taiwan                      | Taiwan Chemical Substance Inventory (TCSI)                             | Yes                    |
| United States & Puerto Rico | Toxic Substances Control Act (TSCA) Inventory                          | 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

### 16.1 Information on revision of the SDS

|                     |                 |
|---------------------|-----------------|
| Issue date          | 10-30-2019      |
| Version #           | 01              |
| Previous SDS number | Not applicable. |

### 16.2 List of references used in compiling the safety data sheet

GOST 19433-88. Dangerous goods. Classification and marking.  
 GOST 12.1.004-91. Occupational safety standards system. Fire safety. General requirements.  
 GOST 12.1.044-89. Occupational safety standards system. Fire and explosion hazard of substances and materials. Nomenclature of substances and materials. Nomenclature of indices and methods of their determination.  
 GOST 31340-2013 Labeling of chemicals. General requirements.  
 GOST 32419-2013 Classification of chemical products. General requirements.  
 GOST 30333-2007 Chemical production safety passport. General requirements.  
 GOST 32424-2013 Classification of chemicals for environmental hazards. General principles.  
 GOST 12.1.007-76 Occupational safety standard system. Noxious substances. Classification and general safety requirements.  
 Hygiene Norm GN 2.2.5.1313-03. Executive No. 76 of 30 April 2003. Maximum allowable concentration (MAC) of harmful substances in the air of working zones, as amended.

**List of abbreviations** Not available.

**Disclaimer** The information in the sheet was written based on the best knowledge and experience currently available.