



CHEMICAL PRODUCT SAFETY DATA SHEET

Prepared in accordance with GB/T 16483 and GB/T 17519.

MATERION

Product name: Zirconium Copper Targets

Issue date: 09-03-2019

Version #: 01

SDS No: G54

SECTION 1 Chemical product and company identification

| | |
|----------------------------|---|
| Chinese name of chemical | 锆铜靶 |
| English name of chemical | Zirconium Copper Targets |
| Manufacturer/Supplier | Materion Advanced Materials Germany GmbH |
| Address | Borsigstrasse 10 Alzenau, 63755 Germany |
| Contact person | Hermann Schmiing |
| Telephone | 49.60.23.91.82.0 |
| e-mail | Materion.Germany@materion.com |
| Emergency telephone number | 49.60.23.91.82.0 |
| Issue date | 09-03-2019 |
| SDS No | G54 |

SECTION 2 Hazards identification

| | |
|-------------------------------|---|
| Emergency overview | 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. |
| Hazard categories | Not classified. |
| Label elements | |
| Pictograms | None. |
| Signal word | None. |
| Hazard statement | 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 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. |
| Physical and chemical hazards | The product is stable and non-reactive under normal conditions of use, storage and transport. No unusual fire or explosion hazards noted. |
| Health hazards | Expected to be a low ingestion hazard. Direct contact with eyes may cause temporary irritation. |
| Environmental hazards | 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. |
| Supplemental information | For further information, please contact the Product Stewardship Department at +1.216.383.4019. |

SECTION 3 Composition/information on ingredients

| | | | |
|-------------------|---------|-------------------|------------|
| Substance/mixture | Mixture | | |
| Chemical name | | Concentration (%) | CAS Number |
| Zirconium | | 50 - 75 | 7440-67-7 |

Chemical name

| | | |
|--------|---------|-----------|
| Copper | 25 - 50 | 7440-50-8 |
|--------|---------|-----------|

SECTION 4 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 Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Ingestion Rinse mouth. Get medical attention if symptoms occur.

Most important symptoms and health effects Under normal conditions of intended use, this material does not pose a risk to health.

Personal protection for first-aid responders 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.

SECTION 5 Fire-fighting measures

Extinguishing media Powder. Dry sand.

Extinguishing media to avoid Carbon dioxide (CO₂).

Specific hazards Non-combustible, substance itself does not burn.

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

Protection of fire-fighters Wear suitable protective equipment.

General fire hazards No unusual fire or explosion hazards noted.

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

SECTION 6 Accidental release measures**Personal precautions, protective equipment and emergency procedures**

For non-emergency personnel Keep unnecessary personnel away. For personal protection, see section 8 of the SDS.

For emergency responders Keep unnecessary personnel away. Use personal protection recommended in Section 8 of the SDS.

Environmental precautions No special environmental precautions required.

Clean-up methods and materials and containment measures Stop the flow of material, if this is without risk. Collect and dispose of spillage as indicated in section 13 of the SDS.

Prevention of secondary hazards Not available.

SECTION 7 Handling and storage

Handling Observe good industrial hygiene practices.

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

SECTION 8 Exposure controls/personal protection**Exposure limits**

China OELs. Occupational Exposure Limits for Hazardous Agents in the Workplace, Chemical Hazardous Agents (GBZ 2.1-2007)

| Components | Type | Value | Form |
|---------------------------|---------|-----------------------|-------|
| Copper (CAS 7440-50-8) | PC-TWA | 1 mg/m ³ | Dust. |
| | | 0.2 mg/m ³ | Fume. |
| Zirconium (CAS 7440-67-7) | PC-STEL | 10 mg/m ³ | |
| | PC-TWA | 5 mg/m ³ | |

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

Monitoring methods Follow standard monitoring procedures.

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|--------------------------------------|--|
| Engineering measures | 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. Provide eyewash station. |
| Personal protective equipment | |
| Respiratory protection | In case of insufficient ventilation, wear suitable respiratory equipment. |
| Hand protection | Wear gloves to prevent metal cuts and skin abrasions during handling. |
| Eye protection | Wear safety glasses with side shields (or goggles). |
| Skin and body protection | Wear suitable protective clothing. |
| 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. |

SECTION 9 Physical and chemical properties

Appearance

| | |
|--|-----------------|
| Physical state | Solid. |
| Form | Solid. |
| Color | Grey. |
| Odor | None. |
| Odor threshold | Not applicable. |
| pH | Not applicable. |
| Melting point/freezing point | Not applicable. |
| Boiling point, initial boiling point, and boiling range | Not applicable. |
| Flash point | Not applicable. |
| Flammability limit - lower (%) | Not applicable. |
| Flammability limit - lower (%) temperature | Not applicable. |
| Flammability limit - upper (%) | Not applicable. |
| Flammability limit - upper (%) temperature | Not applicable. |
| Explosive limit - lower (%) | Not applicable. |
| Explosive limit - lower (%) temperature | Not applicable. |
| Explosive limit - upper (%) | Not applicable. |
| Explosive limit - upper (%) temperature | Not applicable. |
| Vapor pressure | Not applicable. |
| Vapor density | Not applicable. |
| Relative density | Not applicable. |
| Density | Not applicable. |
| Solubility(ies) | |
| Solubility (water) | Insoluble. |
| Partition coefficient (n-octanol/water) | Not applicable. |
| Auto-ignition temperature | Not applicable. |
| Decomposition temperature | Not applicable. |
| Evaporation rate | Not applicable. |
| Flammability (solid, gas) | Not applicable. |
| Other data | |
| Explosive properties | Not explosive. |

| | |
|-----------------------------|-----------------|
| Flammability | Not flammable. |
| Oxidizing properties | Not oxidizing. |
| Viscosity | Not applicable. |

SECTION 10 Stability and reactivity

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| Reactivity | The product is stable and non-reactive under normal conditions of use, storage and transport. |
| Stability | Material is stable under normal conditions. |
| Possibility of hazardous reactions | No dangerous reaction known under conditions of normal use. |
| Conditions to avoid | Contact with incompatible materials. |
| Incompatible materials | Acids. Alkalies. |
| Hazardous decomposition products | No hazardous decomposition products are known. |

SECTION 11 Toxicological information

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|---|---|
| Acute toxicity | None known. |
| Routes of exposure | Inhalation. Eye contact. |
| Symptoms | None known. |
| Skin corrosion/irritation | Not likely, due to the form of the product. |
| Serious eye damage/eye irritation | None known. |
| Respiratory or skin sensitization | |
| Respiratory sensitization | Not a respiratory sensitizer. |
| Skin sensitizer | Not a skin sensitizer. |
| Germ cell mutagenicity | Not classified. |
| Carcinogenicity | Not classifiable as to carcinogenicity to humans. |
| Toxic to reproduction | Not classified. |
| Specific target organ toxicity following single exposure | Not classified. |
| Specific target organ toxicity following repeated exposure | Not classified. |
| Aspiration hazard | Not an aspiration hazard. |
| Chronic effects | None known. |

SECTION 12 Ecological information

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|--------------------------------------|--|
| 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. |
| Persistence and degradability | No data is available on the degradability of any ingredients in the mixture. |
| Bioaccumulation | No data available. |
| Mobility in soil | No data available for this product. |
| Other hazardous effects | 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

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| Residual waste | 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). |
| Contaminated 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. |
| Local disposal regulations | Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations. |

SECTION 14 Transport information**CNDG**

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.

SECTION 15 Regulatory information**Law of the People's Republic of China on Prevention and Control of Occupational Diseases****Classification of occupational disease hazards**

Copper (CAS 7440-50-8)

Zirconium (CAS 7440-67-7)

Regulations on the Control over Safety of Dangerous Chemicals**Catalog of Hazardous Chemicals**

Zirconium metal (CAS 7440-67-7)

Provision on the Environmental Administration of New Chemical Substances**China Inventory of Existing Chemical Substances**

| Country(s) or region | Inventory name | On inventory (yes/no)* |
|----------------------|--|------------------------|
| China | Inventory of Existing Chemical Substances in China (IECSC) | 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).

Other regulations

This safety data sheet conforms to the following laws, regulations and standards:
 Measures for the Safe Use of Chemicals in Workplaces
 General Rules for Preparation of Precautionary Labels for Chemicals (GB15258-2009)
 Regulations on Labor Protection in Workplaces Where Toxic Products Are Used
 Packing Symbol of Dangerous Goods(GB190-2009)
 Regulations on the Control over Safety of Dangerous Chemicals
 Safety Data Sheet for Chemical Products - Content and Order of Sections (GB/T 16483-2008)
 Packing - Pictorial Marking for Handling of Goods (GB/T191-2009)

International regulations**Stockholm Convention**

Not applicable.

Rotterdam Convention

Not applicable.

Montreal Protocol

Not applicable.

Kyoto protocol

Not applicable.

Basel Convention

Not applicable.

SECTION 16 Other information**Bibliography**

EPA: AQUIRE database
 GB6944-2012: Classification and Code of Dangerous Goods.
 GB12268-2012: List of Dangerous Goods.
 NLM: Hazardous Substances Data Base
 US. IARC Monographs on Occupational Exposures to Chemical Agents

Further information

Transportation Emergency
Call Chemtrec at:
Domestic: 800.424.9300
International: 703.527.3887

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