



PRODUCT INFORMATION SHEET

MATERION

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

1.1. Product identifier

| | |
|-------------------------------------------------|-----------------------------------|
| Trade name or designation of the mixture | Zinc Oxide/Aluminum Oxide Targets |
| Registration number | - |
| Document number | G26 |
| Synonyms | None. |
| Issue date | 04-March-2019 |
| Version number | 02 |
| Revision date | 04-March-2019 |

1.3. Details of the supplier of the product information sheet

Supplier

| | | |
|-----------------------|------------------------------------------|-------------|
| Company name | Materion Advanced Materials Germany GmbH | |
| Address | Borsigstrasse 10 63755 Alzenau DE | |
| Division | | |
| Telephone | 49.60.23.91.82.0 | H. Schmiing |
| e-mail | Materion.Germany@materion.com | |
| Contact person | Hermann Schmiing | |

| | | |
|----------------------------------------|------------------|-------------|
| 1.4. Emergency telephone number | 49.60.23.91.82.0 | H. Schmiing |
|----------------------------------------|------------------|-------------|

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

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

1.3. Details of the supplier of the safety data sheet

Supplier

| | | |
|-----------------------|------------------------------------------|-------------|
| Company name | Materion Advanced Materials Germany GmbH | |
| Address | Borsigstrasse 10 63755 Alzenau DE | |
| Division | | |
| Telephone | 49.60.23.91.82.0 | H. Schmiing |
| e-mail | Materion.Germany@materion.com | |
| Contact person | Hermann Schmiing | |

| | | |
|----------------------------------------|------------------|-------------|
| 1.4. Emergency telephone number | 49.60.23.91.82.0 | H. Schmiing |
|----------------------------------------|------------------|-------------|

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

| | |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hazard summary | The products are classified as articles and, as such, do not present a physical or health hazard in the present form. If the products are processed or handled in ways that generate particles (dust, fume, particles or powder) and/or chemical compounds, a potential health hazard could exist and risk management measures must be taken to minimize risk. |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

2.2. Label elements

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

| | |
|------------------|-----------------------------|
| Contains: | Aluminium oxide, Zinc oxide |
|------------------|-----------------------------|

| | |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hazard pictograms | None. |
| Signal word | None. |
| Hazard statements | 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

| | |
|-------------------|--------------------------------------------|
| Prevention | Observe good industrial hygiene practices. |
| Response | Wash hands after handling. |
| Storage | Store away from incompatible materials. |
| Disposal | |

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

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 |
|---------------------------------------------------------------------|---------|------------------------|------------------------|--------------|-------|
| Zinc oxide | 95 - 99 | 1314-13-2 215-222-5 | - | 030-013-00-7 | |
| Classification: Aquatic Acute 1;H400, Aquatic Chronic 1;H410 | | | | | |
| Aluminium oxide | 1 - 5 | 1344-28-1 215-691-6 | - | - | |
| Classification: - | | | | | |

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 None known.

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 | Water fog. Foam. Dry chemical powder. Carbon dioxide (CO ₂). |
| Unsuitable extinguishing media | None known. |

5.2. Special hazards arising from the substance or mixture No unusual fire or explosion hazards noted.

5.3. Advice for firefighters

| | |
|------------------------------------------------------|----------------------------------------------|
| Special protective equipment for firefighters | Wear suitable protective equipment. |
| Special firefighting procedures | Use water spray to cool unopened containers. |

Specific methods 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. Wear appropriate protective equipment and clothing during clean-up. 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 Prevent further leakage or spillage if safe to do so.

6.3. Methods and material for containment and cleaning up Wear appropriate protective equipment and clothing during clean-up. Stop the flow of material, if this is without risk.

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 Do not handle until all safety precautions have been read and understood. Observe good industrial hygiene practices.

7.2. Conditions for safe storage, including any incompatibilities Keep locked up. 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

Germany. DFG MAK List (advisory OELs). Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area (DFG)

| Components | Type | Value | Form |
|---------------------------------|------|-----------------------|----------------------|
| Aluminium oxide (CAS 1344-28-1) | TWA | 4 mg/m ³ | Inhalable dust. |
| | | 1,5 mg/m ³ | Respirable dust. |
| Zinc oxide (CAS 1314-13-2) | TWA | 2 mg/m ³ | Inhalable fraction. |
| | | 0,1 mg/m ³ | Respirable fraction. |

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

| Components | Type | Value | Form |
|---------------------------------|------|------------------------|----------------------|
| Aluminium oxide (CAS 1344-28-1) | AGW | 10 mg/m ³ | Inhalable fraction. |
| | | 1,25 mg/m ³ | Respirable 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. If engineering measures are not sufficient to maintain concentrations of dust particulates below the OEL (occupational exposure limit), suitable respiratory protection must be worn. If material is ground, cut, or used in any operation which may generate dusts, use appropriate local exhaust ventilation to keep exposures below the recommended exposure limits.

Individual protection measures, such as personal protective equipment

General information Not available.

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin protection

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

| | |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| - Other | Wear suitable protective clothing. |
| Respiratory protection | If ventilation is insufficient, suitable respiratory protection must be provided. |
| 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 | Inform appropriate managerial or supervisory personnel of all environmental releases. 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 | White. |
| Odour | None. |
| Odour threshold | Not applicable. |
| pH | Not applicable. |
| Melting point/freezing point | 1975 °C (3587 °F) estimated / Not applicable. |
| Initial boiling point and boiling range | Not applicable. |
| Flash point | Not applicable. |
| Evaporation rate | Not applicable. |
| Flammability (solid, gas) | None known. |
| Upper/lower flammability or explosive limits | |
| Explosive limit - lower (%) | Not applicable. |
| Explosive limit - lower (%) temperature | Not applicable. |
| Explosive limit – upper (%) | Not applicable. |
| Explosive limit - upper (%) temperature | Not applicable. |
| Vapour pressure | Not applicable. |
| Vapour density | Not applicable. |
| Relative density | Not applicable. |
| Solubility(ies) | |
| Solubility (water) | Insoluble. |
| Partition coefficient (n-octanol/water) | Not applicable. |
| Auto-ignition temperature | Not applicable. |
| Decomposition temperature | Not applicable. |
| Viscosity | Not applicable. |
| Explosive properties | Not explosive. |
| Oxidising properties | Not oxidising. |
| 9.2. Other information | |
| Density | 5,53 g/cm ³ estimated |

SECTION 10: Stability and reactivity

| | |
|-------------------------------------------------|-----------------------------------------------------------------------------------------------|
| 10.1. Reactivity | The product is stable and non-reactive under normal conditions of use, storage and transport. |
| 10.2. Chemical stability | Material is stable under normal conditions. |
| 10.3. Possibility of hazardous reactions | No dangerous reaction known under conditions of normal use. |

| | |
|-----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| 10.4. Conditions to avoid | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. Contact with incompatible materials. |
| 10.5. Incompatible materials | Acids. Chlorine. |
| 10.6. Hazardous decomposition products | No hazardous decomposition products are known. |

SECTION 11: Toxicological information

General information Occupational exposure to the substance or mixture may cause adverse effects.

Information on likely routes of exposure

| | |
|---------------------|---------------------------------------------|
| Inhalation | Not likely, due to the form of the product. |
| Skin contact | Not likely, due to the form of the product. |
| Eye contact | Not likely, due to the form of the product. |
| Ingestion | Expected to be a low ingestion hazard. |

Symptoms None known.

11.1. Information on toxicological effects

| | |
|-----------------------------------------------------------|---------------------------------------------------|
| Acute toxicity | Not known. |
| Skin corrosion/irritation | Not likely, due to the form of the product. |
| Serious eye damage/eye irritation | Not likely, due to the form of the product. |
| Respiratory sensitisation | Not a respiratory sensitizer. |
| Skin sensitisation | Not a skin sensitiser. |
| Germ cell mutagenicity | Not classified. |
| Carcinogenicity | Not classifiable as to carcinogenicity to humans. |
| Reproductive toxicity | Not classified. |
| Specific target organ toxicity - single exposure | Not classified. |
| Specific target organ toxicity - repeated exposure | Not classified. |
| Aspiration hazard | Not an aspiration hazard. |
| Mixture versus substance information | No information available. |
| Other information | Not available. |

SECTION 12: Ecological information

| | |
|--------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 12.1. Toxicity | Not relevant, due to the form of the product. |
| 12.2. Persistence and degradability | No data is available on the degradability of any ingredients in the mixture. |
| 12.3. Bioaccumulative potential | No data available. |
| Partition coefficient n-octanol/water (log Kow) | Not available. |
| Bioconcentration factor (BCF) | Not available. |
| 12.4. Mobility in soil | No data available. |
| 12.5. Results of PBT and vPvB assessment | Not a PBT or vPvB substance or mixture. |
| 12.6. 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. |

SECTION 13: Disposal considerations

13.1. Waste treatment methods

| | |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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. |

| | |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EU waste code | The Waste code should be assigned in discussion between the user, the producer and the waste disposal company. |
| Disposal methods/information | Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations. |
| Special precautions | 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

Aluminium oxide (CAS 1344-28-1)

Zinc oxide (CAS 1314-13-2)

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

Zinc oxide (CAS 1314-13-2)

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.

Water hazard class**AwSV**

WGK2

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 calculation methods and test data, if available.

Full text of any H-statements not written out in full under Sections 2 to 15

H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.

Revision information

SECTION 2: Hazards identification: Hazard summary

Training information

Follow training instructions when handling this material.

Disclaimer

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