



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 | Silver Molybdenum Target |
| Registration number | - |
| Document number | G53 |
| Synonyms | None. |
| Issue date | 07-June-2019 |
| Version number | 02 |
| Revision date | 22-February-2021 |
| Supersedes date | 07-June-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

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. 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.

2.2. Label elements

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

| | |
|--------------------------|--|
| Contains: | Molybdenum, Silver |
| Hazard pictograms | None. |
| Signal word | None. |
| Hazard statements | The mixture does not meet the criteria for classification. |

Precautionary statements

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

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 |
|--------------------------|----------|-------------------------|-------------------------------|------------------|--------------|
| Silver | 95 - 99 | 7440-22-4 231-131-3 | - | - | # |
| Classification: - | | | | | |
| Molybdenum | 1 - 5 | 7439-98-7 231-107-2 | - | - | |
| Classification: - | | | | | |

List of abbreviations and symbols that may be used above

#: This substance has been assigned Union workplace exposure limit(s).

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 | Water fog. Foam. Dry chemical powder. Carbon dioxide (CO ₂). |
| Unsuitable extinguishing media | Do not use water jet as an extinguisher, as this will spread the fire. |

5.2. Special hazards arising from the substance or mixture

None known.

5.3. Advice for firefighters

| | |
|--|-------------------------------------|
| Special protective equipment for firefighters | Wear suitable protective equipment. |
|--|-------------------------------------|

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

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. 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.

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. For waste disposal, see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling Avoid prolonged exposure. Observe good industrial hygiene practices.

7.2. Conditions for safe storage, including any incompatibilities Store in tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).

7.3. Specific end use(s) Not available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

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

| Components | Type | Value | Form |
|----------------------------|------|-----------------------|----------------------|
| Molybdenum (CAS 7439-98-7) | TWA | 5 mg/m ³ | Respirable fraction. |
| | | 5 mg/m ³ | |
| | | 10 mg/m ³ | Inhalable fraction. |
| Silver (CAS 7440-22-4) | TWA | 0,1 mg/m ³ | |

EU. Indicative Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU

| Components | Type | Value |
|------------------------|------|-----------------------|
| Silver (CAS 7440-22-4) | TWA | 0,1 mg/m ³ |

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 Use personal protective equipment as required.

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

Skin protection

- Hand protection Wear protective gloves.

- 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 | Silver. |
| Odour | None. |
| Odour threshold | Not applicable. |
| pH | Not available. |
| Melting point/freezing point | 960,5 °C (1760,9 °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 available. |
| 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 | 10,48 g/cm ³ estimated |
| Specific gravity | 10,48 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 | Contact with incompatible materials. |
| 10.5. Incompatible materials | Ammonia. 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 Prolonged inhalation may be harmful.
Skin contact No adverse effects due to skin contact are expected.
Eye contact Direct contact with eyes may cause temporary irritation.
Ingestion May cause discomfort if swallowed. However, ingestion is not likely to be a primary route of occupational exposure.

Symptoms Direct contact with eyes may cause temporary irritation.

11.1. Information on toxicological effects

Acute toxicity Not known.
Skin corrosion/irritation This product is not expected to cause skin sensitisation.
Serious eye damage/eye irritation May cause temporary eye irritation.
Respiratory sensitisation Not a respiratory sensitizer.
Skin sensitisation Not a skin sensitiser.
Germ cell mutagenicity Not classified.
Carcinogenicity Not classified.
Reproductive toxicity Not classified.
Specific target organ toxicity - single exposure Not classified.
Specific target organ toxicity - repeated exposure Not classified.
Aspiration hazard Due to partial or complete lack of data the classification is not possible.
Mixture versus substance information No information available.
Other information Not available.

SECTION 12: Ecological information

12.1. Toxicity Based on available data, the classification criteria are not met for hazardous to the aquatic environment.

| Components | Species | Test Results |
|------------------------|--|-------------------------------|
| Silver (CAS 7440-22-4) | | |
| Aquatic | | |
| <i>Acute</i> | | |
| Fish | LC50 Fathead minnow (<i>Pimephales promelas</i>) | 0,0019 - 0,003 mg/l, 96 hours |

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. |
| 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

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. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006, 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. |
| Full text of any H-statements not written out in full under Sections 2 to 15 | None. |
| Revision information | Physical & Chemical Properties: Multiple Properties |
| Training information | Follow training instructions when handling this material. |
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