



# MATERIAL SAFETY DATA SHEET

**MATERION**

## 1. Chemical product and company identification

**A. Product name** Copper Zinc Targets

### Other means of identification

SDS number G35

### B. Recommended use and Limitations on use

**Recommended use** Industrial uses: Uses of substances as such or in preparations at industrial sites

**Limitations on use** Consumer uses: Private households (= general public = consumers)

### C. Supplier information

**Company name** Materion Advanced Materials Germany GmbH

**Address**  
Borsigstrasse 10  
Alzenau 63755  
Germany

**Email** Materion.Germany@materion.com

**Contact person** Hermann Schmiing

**Emergency telephone number** 49.60.23.91.82.0

**MSDS number** G35

## 2. Hazards identification

### A. Hazard category/Classification

**Physical hazards** Not classified.

**Health hazards** Acute toxicity, oral Category 3  
Specific target organ toxicity, single exposure Category 3 respiratory tract irritation

**Environmental hazards** Hazardous to the aquatic environment, acute hazard Category 1  
Hazardous to the aquatic environment, long-term hazard Category 1

### B. Warning label items including precautionary statement

#### • Pictogram



• **Signal word** Danger

#### • Hazard statement

H301 Toxic if swallowed.  
H335 May cause respiratory irritation.  
H400 Very toxic to aquatic life.  
H410 Very toxic to aquatic life with long lasting effects.

#### • Precautionary statement

##### Prevention

P261 Observe good industrial hygiene practices.  
P264 Avoid breathing dust/fume/gas/mist/vapors/spray.  
P270 Wash thoroughly after handling.  
P271 Do not eat, drink or smoke when using this product.  
P271 Use only outdoors or in a well-ventilated area.  
P273 Avoid release to the environment.

##### Response

P301 + P310 Wash hands after handling.  
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

P330 Rinse mouth.  
 P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
 P312 Call a POISON CENTER or doctor/physician if you feel unwell.  
 P391 Collect spillage.

**Storage**

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.  
 P405 Store locked up.

**Disposal**

P502 Refer to manufacturer/supplier for information on recovery/recycling.

**C. Other hazards not included in the hazard category criteria (e.g. dust explosion hazard)** None known.

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

**3. Composition/information on ingredients**

Chemical identity	Common and alternative names	CAS number	ID number	Content in percent (%)
Copper		7440-50-8	KE-08896	50 - 75
Zinc		7440-66-6	KE-35518	25 - 50

**4. First aid measures**

- A. In case of eye contact** Flush eyes with water as a precaution. Get medical attention if irritation develops and persists.
- B. In case of skin contact** Wash off with soap and water. Get medical attention if irritation develops and persists.
- C. In case of inhalation** Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a poison center or doctor/physician if you feel unwell.
- D. In case of swallowing** Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
- E. Note to physician** Provide general supportive measures and treat symptomatically. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
- Most important symptoms/effects, acute and delayed** May cause respiratory irritation. Under normal conditions of intended use, this material does not pose a risk to health.
- General advice** 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. Show this safety data sheet to the doctor in attendance.

**5. Fire-fighting measures**

- A. Suitable (and unsuitable) extinguishing media**
  - Suitable extinguishing media** Powder. Dry sand.
  - Unsuitable extinguishing media** Water. Do not use water jet as an extinguisher, as this will spread the fire. Do not use water as an extinguisher.
- B. Specific hazards arising from the chemical (example: hazardous combustion products)** This product is not flammable.
- C. Specific methods of fire-fighting**
  - Special protective equipment for firefighters** Wear suitable protective equipment.
  - Special fire fighting procedures** Move containers from fire area if you can do so without risk.
- General fire hazards** No unusual fire or explosion hazards noted.
- Specific methods** Use standard firefighting procedures and consider the hazards of other involved materials.

## 6. Accidental release measures

- A. Personal precautions, protective equipment and emergency measures** Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the MSDS.
- B. Environmental precautions** Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.
- C. Methods and materials for containment and cleaning up** The product is immiscible with water and will spread on the water surface. Prevent product from entering drains. Clean up in accordance with all applicable regulations.
- Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.
- Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.
- Never return spills to original containers for re-use. For waste disposal, see section 13 of the MSDS.

## 7. Handling and storage

- A. Precautions for safe handling** Do not taste or swallow. Avoid prolonged exposure. When using, do not eat, drink or smoke. Provide adequate ventilation. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Avoid release to the environment. Observe good industrial hygiene practices. Wear gloves to prevent metal cuts and skin abrasions during handling.
- B. Conditions for safe storage (including any incompatibilities)** Keep locked up. Store in tightly closed container. Store away from incompatible materials (see Section 10 of the MSDS).

## 8. Exposure controls/personal protection

### A. Exposure limit values, biological limit values, etc

#### Korea. OELs. Standards for Exposure to Chemical Substances and Physically Hazardous Factors

Components	Type	Value	Form
Copper (CAS 7440-50-8)	STEL	2 mg/m <sup>3</sup>	Dust and mist.
	TWA	1 mg/m <sup>3</sup>	Dust and mist.
		0.1 mg/m <sup>3</sup>	Fume.

#### US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Copper (CAS 7440-50-8)	TWA	1 mg/m <sup>3</sup>	Dust and mist.
		0.2 mg/m <sup>3</sup>	Fume.

### Biological limit values

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

### B. Appropriate engineering controls

Good general ventilation (typically 10 air changes per hour) 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.

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### C. Personal protective equipment

- **Respiratory protection** In case of insufficient ventilation, wear suitable respiratory equipment. Chemical respirator with organic vapor cartridge.
- **Eye protection** Face shield is recommended. Wear safety glasses with side shields (or goggles). 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.
- **Hand protection** Wear appropriate chemical resistant gloves. Wear gloves to prevent metal cuts and skin abrasions during handling.

• **Body protection** Use of an impervious apron is recommended. No specific recommendations.

**Hygiene measures** Keep away from food and drink. 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

### A. Appearance

**Physical state** Solid.

**Form** Solid.

**Color** Yellow.

**B. Odor** None.

**C. Odor threshold** Not applicable.

**D. pH** Not applicable.

### E. Melting point/freezing point

**Melting point** 1660 °F (904.44 °C) estimated

**Freezing point** Not applicable.

**F. Boiling point, initial boiling point, and boiling range** Not applicable.

**G. Flash point** Not applicable.

**H. Evaporation rate** Not applicable.

**I. Flammability (solid, gas)** None known.

### J. Upper/lower limit on flammability or explosive limits

**Flammability limit - lower (%)** Not applicable.

**Flammability limit - upper (%)** Not applicable.

**Explosive limit - lower (%)** Not applicable.

**Explosive limit - lower (%) temperature** Not applicable.

**Explosive limit - upper (%)** Not applicable.

**Explosive limit - upper (%) temperature** Not applicable.

**K. Vapor pressure** Not applicable.

### L. Solubility

**Solubility (water)** Insoluble.

**Solubility (other)** Not applicable.

**M. Vapor density** Not applicable.

**N. Specific gravity** Not applicable.

**O. n-octanol/water partition coefficient** Not applicable.

**P. Auto-ignition temperature** Not applicable.

**Q. Decomposition temperature** Not applicable.

**R. Viscosity** Not applicable.

**S. Molecular weight** Not available.

### Other data

**Density** 8.22 g/cm<sup>3</sup> estimated

**Explosive properties** Not explosive.

**Molecular formula** Not applicable.

**Oxidizing properties** Not oxidizing.

## 10. Stability and reactivity

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

## A. Stability and hazardous reaction potential

Stability	Material is stable under normal conditions.
Hazardous reaction potential	No dangerous reaction known under conditions of normal use.

**B. Conditions to avoid (e.g. static discharge, shock or vibration, etc)** Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. Contact with incompatible materials.

**C. Incompatible materials** Strong oxidizing agents.

**D. Hazardous decomposition products** Irritating and/or toxic fumes and gases may be emitted upon the product's decomposition.

## 11. Toxicological information

### A. Information on likely routes of exposure

- **Respiratory organs** May cause irritation to the respiratory system. Prolonged inhalation may be harmful. Not likely, due to the form of the product.
- **Skin** No adverse effects due to skin contact are expected.
- **Eyes** Not relevant, due to the form of the product.
- **Mouth** Toxic if swallowed.

### B. Information on health hazards

- **Acute toxicity (list all possible routes of exposure)** Toxic if swallowed.
- **Corrosivity or irritation to the skin** Not relevant, due to the form of the product.
- **Serious eye damage/eye irritation** Not likely, due to the form of the product.
- **Respiratory sensitization** Not a respiratory sensitizer.
- **Skin sensitization** Not a skin sensitizer.
- **Carcinogenic properties /Carcinogenicity** Not classified.
- **Mutagenic properties /Mutagenicity** Not classified.
- **Reproductive toxicity** Not classified.
- **Specific target organ toxicity - single exposure** May cause respiratory irritation.
- **Specific target organ toxicity - repeated exposure** Not classified.
- **Aspiration hazard** Not an aspiration hazard.

## 12. Ecological information

**A. Ecotoxicity** Very toxic to aquatic life with long lasting effects.

**Hazardous to the aquatic environment, acute hazard** Very toxic to aquatic life.

**Hazardous to the aquatic environment, long-term hazard** Very toxic to aquatic life with long lasting effects.

**B. Persistence/degradability** No data is available on the degradability of this product.

**C. Bioaccumulative potential** No data available.

**D. Mobility in soil** The product is immiscible with water and will spread on the water surface.

**E. 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. Disposal considerations

- A. Method of disposal** 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 related regulations).
- B. Disposal considerations (including disposal of contaminated containers or 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.
- Waste code** The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

### 14. Transport information

#### IATA

- A. UN number** Not applicable.  
**B. UN proper shipping name** Not applicable.  
**C. Transport hazard class(es)**  
    **Class** Not applicable.  
    **Subsidiary risk** -  
**D. Packing group** Not applicable.  
**E. Environmental hazards** No.  
**F. Special precautions for user** Not applicable.

#### IMDG

- A. UN number** Not applicable.  
**B. UN proper shipping name** Not applicable.  
**C. Transport hazard class(es)**  
    **Class** Not applicable.  
    **Subsidiary risk** -  
**D. Packing group** Not applicable.  
**E. Environmental hazards**  
    **Marine pollutant** No.  
**EmS** Not applicable.  
**F. Special precautions for user** Not applicable.

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

### 15. Regulatory information

#### A. Restrictions under the Industrial Safety and Health Law

##### Harmful Substances Prohibited from Manufacturing

Not regulated.

##### Harmful Substances Requiring Permission for Manufacture or Use

Not regulated.

##### Controlled Hazardous Substances

Copper (CAS 7440-50-8)

Zinc (CAS 7440-66-6)

##### Harmful Substances Requiring Special Medical Examination

Copper (CAS 7440-50-8)

##### Workplace Environmental Monitoring Harmful Materials

Copper (CAS 7440-50-8)

##### Occupational Exposure Limit

Copper (CAS 7440-50-8)

#### B. Restrictions under the Chemicals Control Law (Previously Toxic Chemicals Control Law)

##### Accidental Release Prevention Substances

Not regulated.

**Act on the Registration and Evaluation of Chemicals**

**Banned Toxic Chemicals**

Not regulated.

**Designated Existing Chemicals Subject to Registration (PEC) (MoE No. 2015-92)**

Not listed.

**Restricted Chemical Substances**

Not regulated.

**Toxic Chemicals**

Not regulated.

**C. Restrictions under the Dangerous Substance Safety Management Act**

**D. Restrictions under the Wastes Control Act**

**Halogenated Materials in Waste Organic Solvents**

Not regulated.

**Hazardous Substances**

Copper (CAS 7440-50-8)

Hazardous substances in slag, dust, waste molding sand & sand from sand blast, waste refractories & ceramic pieces, residues of incineration, materials treated for stabilization, & waste catalysts 3 MG/L

Hazardous substances in sludge, waste absorbers and absorbers 3 MG/L

**E. Restrictions under other foreign or domestic laws**

**Clean Air Conservation Act**

**Air Pollutants**

Copper (CAS 7440-50-8)

Zinc (CAS 7440-66-6)

**Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides (Rules on PIC, MoE No. 2014-252, Dec. 31, 2014; Standards for Pesticides, RDA No. 2014-26), as amended**

Not listed.

**Specific Air Pollutants**

Not regulated.

**Further information**

This material safety data sheet was prepared in accordance with Article 41 of the Industrial Safety and Health Law.

**Inventory status**

Country(s) or region	Inventory name	On inventory (yes/no)*
Korea	Existing Chemicals List (ECL)	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

### Bibliography

ACGIH  
EPA: AQUIRE database  
NLM: Hazardous Substances Data Base  
US. IARC Monographs on Occupational Exposures to Chemical Agents  
Korea. Accidental Release Prevention Substances (Presidential Decree of Toxic Chemical Control Law, Executive Order No. 19203)  
Korea. Dangerous Substances Threshold Quantity (Presidential Decree of Dangerous Substances Safety Management Act No. 18406, Schedule 1)  
Korea. Harmful Substances Prohibited from Manufacturing (Presidential Decree on the Industrial Safety and Health Act (No. 13053), Article 29)  
Korea. Harmful Substances Requiring Permission for Manufacture or Use (Presidential Decree on the Industrial Safety and Health Act (No. 13053), Article 30)  
Korea. OELs. Regulation for Permitted Concentration of Hazardous Substances (Ministry of Labor (MOL) Public Notice No. 1986-45, as amended)  
Korea. Prohibited Chemical Substances (TCCL Article 11)  
Korea. Regulated volatile organic compounds (VOCs) (MOE Notice No. 2001-36, March 8, 2001, as amended)  
Korea. Restricted Chemical Substances (TCCL Article 11)  
Korea. Toxic Chemical Control Law (TCCL), Existing Chemicals Inventory (KECI)  
Korea. Toxic Chemical Control Law (TCCL), pre-1997 List  
Korea. Toxic Chemicals (TCCL Article 10)  
Korea. Toxic Release Inventory (TRI) Chemicals (TCCL Article 14)  
Korea. Accidental Release Prevention Substances (Pres. Decree of Toxic Chemical Control Law, Ex. Order No. 19203, Tables 2 & 3, Dec 28, 2005)  
Korea. OELs (ISHL Article 42; MOL Public Notice No. 1986-45, as amended through MOEL Notice 2013-38, August 14, 2013)  
Korea. Prohibited Chemical Substances (AREC "K-REACH" Article 27; Designation of Toxic, Restricted or Banned Chemicals Appendices 4 and 5)  
Korea. Restricted Chemical Substances (AREC "K-REACH" Article 27; Designation of Toxic, Restricted or Banned Chemicals Appendices 2 and 3)  
KECI, January 27, 2015, amended through MoE 2016-138, July 13, 2016  
Korea. Toxic Chemicals (AREC "K-REACH" Article 20; Designation of Toxic, Restricted or Banned Chemicals Appendix 1)  
Korea. Toxic Release Inventory (TRI) Chemicals (MOE Public Notice No. 2002-166, Nov. 8, 2002)

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