



MATERIAL SAFETY DATA SHEET

MATERION

1. Chemical product and company identification

A. Product name Chromium Copper Targets

Other means of identification

SDS number G33

B. Recommended use and Limitations 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 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Consumer uses: Private households (= general public = consumers)

C. Supplier information

Company name Materion Advanced Materials Germany GmbH

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Alzenau 63755
Germany

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Contact person Hermann Schmiing

Emergency telephone number 49.60.23.91.82.0

MSDS number G33

2. Hazards identification

A. Hazard category/Classification

Physical hazards Not classified.

Health hazards Not classified.

Environmental hazards Not classified.

B. Warning label items including precautionary statement

• **Pictogram** 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
P501 Dispose of contents/container (in accordance with related regulations).

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 (%)
Chromium		7440-47-3	KE-05970	50
Copper		7440-50-8	KE-08896	50

4. First aid measures

A. In case of eye contact	Rinse with water. 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	Move to fresh air. Call a physician if symptoms develop or persist.
D. In case of swallowing	Rinse mouth. Get medical attention if symptoms occur.
E. Note to physician	Treat symptomatically.
Most important symptoms/effects, acute and delayed	Exposure may cause temporary irritation, redness, or discomfort.
General advice	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

A. Suitable (and unsuitable) extinguishing media	
Suitable extinguishing media	Powder. Dry sand.
Unsuitable extinguishing media	Water.
B. Specific hazards arising from the chemical (example: hazardous combustion products)	None known.
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.
B. Environmental precautions	Collect spillage. Prevent further leakage or spillage if safe to do so.
C. Methods and materials for containment and cleaning up	Stop the flow of material, if this is without risk. Following product recovery, flush area with water.

7. Handling and storage

A. Precautions for safe handling	Observe good industrial hygiene practices.
B. Conditions for safe storage (including any incompatibilities)	Not available.

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
Chromium (CAS 7440-47-3)	TWA	0.05 mg/m ³	
Copper (CAS 7440-50-8)	STEL	2 mg/m ³	Dust and mist.
	TWA	1 mg/m ³	Dust and mist.
		0.1 mg/m ³	Fume.

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Chromium (CAS 7440-47-3)	TWA	0.5 mg/m ³	Inhalable fraction.
Copper (CAS 7440-50-8)	TWA	1 mg/m ³	Dust and mist.

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
		0.2 mg/m ³	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.		
C. Personal protective equipment	<ul style="list-style-type: none"> • Respiratory protection In case of insufficient ventilation, wear suitable respiratory equipment. • Eye protection If contact is likely, safety glasses with side shields are recommended. • Hand protection Wear gloves to prevent metal cuts and skin abrasions during handling. • Body protection Not available. 		
Hygiene measures	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking.		
9. Physical and chemical properties			
A. Appearance			
Physical state	Solid.		
Form	Solid.		
Color	Red. Silver.		
B. Odor	None.		
C. Odor threshold	Not applicable.		
D. pH	Not applicable.		
E. Melting point/freezing point			
Melting point	1981.4 °F (1083 °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 - lower (%) temperature	Not applicable.		
Flammability limit - upper (%)	Not applicable.		
Flammability limit - upper (%) temperature	Not applicable.		
Explosive limit - lower (%)	Not applicable.		
Explosive limit - upper (%)	Not applicable.		
Explosive limit - upper (%) temperature	Not applicable.		
K. Vapor pressure	Not applicable.		
L. Solubility			
Solubility (water)	Insoluble.		
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	8.04 g/cm ³ estimated
Explosivity	Not applicable.
Flammability	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) Contact with incompatible materials.

C. Incompatible materials Strong oxidizing agents.

D. Hazardous decomposition products No hazardous decomposition products are known.

11. Toxicological information

A. Information on likely routes of exposure

- **Respiratory organs** No adverse effects due to inhalation are expected.
- **Skin** No adverse effects due to skin contact are expected.
- **Eyes** Not likely, due to the form of the product.
- **Mouth** Expected to be a low ingestion hazard.

B. Information on health hazards

- **Acute toxicity (list all possible routes of exposure)** Not known.
- **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.

IARC Monographs. Overall Evaluation of Carcinogenicity

Chromium (CAS 7440-47-3)

3 Not classifiable as to carcinogenicity to humans.

- **Mutagenic properties /Mutagenicity** Not classified.
- **Reproductive toxicity** This product is not expected to cause reproductive or developmental effects.
- **Specific target organ toxicity - single exposure** Not classified.
- **Specific target organ toxicity - repeated exposure** Not classified.
- **Aspiration hazard** Not an aspiration hazard.

12. Ecological information

A. 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.
Hazardous to the aquatic environment, acute hazard	Not relevant, due to the form of the product.
Hazardous to the aquatic environment, long-term hazard	Not relevant, due to the form of the product.
B. Persistence/degradability	No data is available on the degradability of this product.
C. Bioaccumulative potential	No data available.
D. Mobility in soil	No data available for this product.
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. 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

Chromium (CAS 7440-47-3)

Copper (CAS 7440-50-8)

Harmful Substances Requiring Special Medical Examination

Chromium (CAS 7440-47-3)

Copper (CAS 7440-50-8)

Workplace Environmental Monitoring Harmful Materials

Chromium (CAS 7440-47-3)

Copper (CAS 7440-50-8)

Occupational Exposure Limit

Chromium (CAS 7440-47-3)

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

Chromium (CAS 7440-47-3)

Copper (CAS 7440-50-8)

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.

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

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