1. Chemical and company identification

Name of chemical (Product name)	**Chromium Nickel Aluminum Targets**
Company name	Materion Advanced Materials Germany GmbH
Address	Borsigstrasse 10 Alzenau 63755 Germany
Contact person	Hermann Schmiing
Telephone	49.60.23.91.82.0
e-mail address	Materion.Germany@materion.com
Emergency telephone number	49.60.23.91.82.0
Reference number	G19

2. Hazards identification

GHS classification

Physical hazards	The product is not classified according to GHS.	
Health hazards	Sensitization, skin	Category 1
	Carcinogenicity	Category 2
	Specific target organ toxicity, repeated exposure	Category 1
Environmental hazards	The product is not classified according to GHS.	

GHS label elements

Symbols

Signal words Danger

Hazard statement May cause an allergic skin reaction. Suspected of causing cancer. Causes damage to organs through prolonged or repeated exposure.

Precautionary statement

Prevention Obtain special instructions before use. Before use, obtain special instructions and learn how to work with these products safely. Do not breathe dust/fume/gas/mist/vapors/spray. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection. In case of inadequate ventilation wear respiratory protection.

Response If on skin: Wash with plenty of water. If exposed or concerned: Get medical advice/attention. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse.

Storage Store locked up.

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

Other hazards which do not result in classification None known.

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

Main symptoms and emergency overview

Main symptoms May cause an allergic skin reaction. Prolonged exposure may cause chronic effects.

Emergency overview May cause an allergic skin reaction. Suspected of causing cancer. Causes damage to organs through prolonged or repeated exposure.

3. Composition/information on ingredients

Substance or mixture Mixture

Components	CAS Number	Gazette notification ENCS no.	ISHL no.	Concentration (%)
Aluminum	7429-90-5			58 - 90
Chromium	7440-47-3			5 - 30
Nickel	7440-02-0			12

Chemical formula Al (7429-90-5), Cr (7440-47-3), Ni (7440-02-0)

4. First aid measures

If inhaled Move to fresh air. Call a physician if symptoms develop or persist.

If on skin Wash off with soap and water. Get medical attention if irritation develops and persists.

If in eyes Rinse with water. If eye irritation persists: Get medical advice/attention.

If swallowed Rinse mouth. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed May cause an allergic skin reaction. Prolonged exposure may cause chronic effects.

Protection of first-aid responders If exposed or concerned: get medical attention/advice.

Notes to physician Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

5. Fire-fighting measures

Extinguishing media Powder. Dry sand. Water Spray or Fog.

Extinguishing media to avoid Carbon dioxide (CO2).

Specific hazards No unusual fire or explosion hazards noted.

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.

6. Accidental release measures

Personal precautions, protective equipment and emergency measures Keep unnecessary personnel away. Wear appropriate protective equipment and clothing during clean-up. For personal protection, see section 8 of the SDS.

Environmental precautions Avoid discharge into drains, water courses or onto the ground.

Methods or materials for containment and cleaning up Stop the flow of material, if this is without risk. For waste disposal, see section 13 of the SDS.

7. Handling and storage

Handling

Technical measures (e.g. Local and general ventilation) No specific recommendations.

Safe handling advice Do not handle until all safety precautions have been read and understood. Wash hands thoroughly after handling. Use personal protection recommended in Section 8 of the SDS.

Contact avoidance measures Strong acids.

Hygiene measures Observe any medical surveillance requirements. Contaminated work clothing should not be allowed out of the workplace.

Storage

Safe storage conditions Store locked up. Store away from incompatible materials (see Section 10 of the SDS).

Safe packaging materials No special precautions are necessary beyond normal good hygiene practices. See Section 8 of the SDS for additional personal protection advice when handling this product.

8. Exposure controls/personal protection

Occupational exposure limits

Japan. OELs - ISHL. (Workplace Environment Assessment Standards)

Components	Type	Value	Form
Aluminum (CAS 7429-90-5)	TLV	0.025 mg/m3	Dust.
Nickel (CAS 7440-02-0)	TLV	0.1 mg/m3	

Japan. OELs - JSOH (Japan Society of Occupational Health: Recommendation of Occupational Exposure Limits)

Components	Type	Value	Form
Aluminum (CAS 7429-90-5)	TWA	2 mg/m3	Total dust.
		0.5 mg/m3	Respirable dust.
Chromium (CAS 7440-47-3)	TWA	0.5 mg/m3	
Nickel (CAS 7440-02-0)	TWA	1 mg/m3	

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Aluminum (CAS 7429-90-5)	TWA	1 mg/m3	Respirable fraction.
Chromium (CAS 7440-47-3)	TWA	0.5 mg/m3	Inhalable fraction.
Nickel (CAS 7440-02-0)	TWA	1.5 mg/m3	Inhalable fraction.

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. General ventilation normally adequate. Provide eyewash station.

Personal protective equipment

Respiratory protection In case of inadequate ventilation, use respiratory protection.

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

Eye protection If contact is likely, safety glasses with side shields are recommended.

Skin and body protection Use personal protective equipment as required.

9. Physical and chemical properties

Appearance

Physical state Solid.

Form Solid.

Color Grey metallic.

Odor None.

Odor threshold Not applicable.

pH Not applicable.

Melting point/Freezing point 2453 °F (1345 °C) estimated / Not applicable.

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

Flash point Not applicable.

Combustion characteristics (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.

Vapor pressure Not applicable.

Vapor density Not applicable.

Evaporation rate	Not applicable.
Specific gravity	Not applicable.
Solubility(ies)	
Solubility (water)	Insoluble.
Partition coefficient (n-octanol/water)	Not applicable. Not applicable.
Auto-ignition temperature	Not applicable.
Decomposition temperature	Not applicable.
Viscosity (Coefficient of viscosity)	Not applicable.
Other information	
Density	7.30 - 8.50 g/cm3
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.
Relative density	Not applicable.
Surface tension	Not applicable.

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical 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	Strong acids. Strong oxidizing agents.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Acute toxicity	None 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 or skin sensitization	
Japan Society for Occupational Health: Respiratory sensitizer	
Chromium (CAS 7440-47-3)	2 Probable respiratory sensitizer.
Nickel (CAS 7440-02-0)	2 Probable respiratory sensitizer.
Japan Society for Occupational Health: Skin sensitizer	
Chromium (CAS 7440-47-3)	1 Known skin sensitizer.
Nickel (CAS 7440-02-0)	1 Known skin sensitizer.
Respiratory sensitization	Not a respiratory sensitizer.
Skin sensitization	May cause an allergic skin reaction.
Germ cell mutagenicity	Not classified.
Carcinogenicity	Suspected of causing cancer.
ACGIH Carcinogens	
Aluminum (CAS 7429-90-5)	A4 Not classifiable as a human carcinogen.
Nickel (CAS 7440-02-0)	A5 Not suspected as a human carcinogen.
IARC Monographs. Overall Evaluation of Carcinogenicity	
Chromium (CAS 7440-47-3)	3 Not classifiable as to carcinogenicity to humans.
Nickel (CAS 7440-02-0)	2B Possibly carcinogenic to humans.
Japan Society for Occupational Health: Carcinogen	
Nickel (CAS 7440-02-0)	1 Carcinogenic to humans.
NTP Report on Carcinogens	
Nickel (CAS 7440-02-0)	Known To Be Human Carcinogen. Reasonably Anticipated to be a Human Carcinogen.

Reproductive toxicity	Not classified.
Specific target organ toxicity - single exposure	Not classified.
Specific target organ toxicity - repeated exposure	Causes damage to organs through prolonged or repeated exposure.
Aspiration hazard	Not an aspiration hazard.

12. Ecological information

Ecotoxicity	The product is not classified as environmentally hazardous.
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.
Hazardous to the ozone layer	No data available.
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.

13. Disposal considerations

Dispose in accordance with all applicable regulations.

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	Contract with a disposal operator licensed by the Law on Disposal and Cleaning. Dispose of contents/container in accordance with local/regional/national/international regulations. When your own wastewater treatment plant is not available, collect entire waste and then charge to a licensed industrial waste management professional with manifests for industrial waste.

14. Transport information

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.
National regulations	Follow regulation in section 15 for domestic transportation.

15. Regulatory information

Industrial Safety and Health Act

Specified substances regulation

Class 2 designated chemical substances

NICKEL COMPOUNDS (POWDER, EXCLUDING NICKEL CARBONYL (ITEM NO. 24))

Notifiable substances

ALUMINUM	Table 9 Ordinance No. 37	58 - 90 %
CHROMIUM AND CHROMIUM COMPOUNDS (EXCLUDING CHROMIC ACID AND CHROMIC ACID SALTS AND DICHROMIC ACID AND DICHROMATE)	Table 9 Ordinance No. 142	5.0 - 30 %
NICKEL	Table 9 Ordinance No. 418	5.0 - 12 %

Labeling substances

ALUMINIUM AND ITS WATER-SOLUBLE SALTS	58 - 90 %
CHROMIUM (POWDER)	5.0 - 30 %
CHROMIUM AND CHROMIUM COMPOUNDS (EXCLUDING CHROMIC ACID AND CHROMIC ACID SALTS AND DICHROMIC ACID AND DICHROMATE)	5.0 - 30 %

Poisonous and Deleterious Substances Control Act

Specified poisonous substances

Not regulated.

Poisonous substances

Not regulated.

Deleterious substances

Not regulated.

Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.

Class I specified chemical substances

Not regulated.

Class II specified chemical substances

Not regulated.

Monitoring chemical substances

Not regulated.

Priority Assessment Chemical Substances (PACs)

Not regulated.

Reporting Exempted Substances

Not regulated.

Law concerning Pollutant Release and Transfer Register

Specified class 1 substances (substance name, ordinance number and content)

NICKEL COMPOUNDS	Ordinance No. 309	12 %	(Nickel)

Class 1 substances (substance name, ordinance number and content)

CHROMIUM AND CHROMIUM(III) COMPOUNDS	Ordinance No. 87	30 %	(Chromium)
NICKEL	Ordinance No. 308	12 %	(Nickel)

Class 2 substances (substance name, ordinance number and content)

Not regulated.

Ship Safety Law, Dangerous Goods Marine Transport and Storage Rule Not regulated.

Air Law, Enforcement Rule Not regulated.

Explosives Control Act

Not regulated.

Water Pollution Control Act

CHROMIUM

Sewage Act

CHROMIUM AND ITS COMPOUNDS, EXCEPT HEXAVALENT CHROMIUM COMPOUNDS (AS CR)	2 MG/L

16. Other information

Bibliography

ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices
HSDB® - Hazardous Substances Data Bank
IARC Monographs. Overall Evaluation of Carcinogenicity
National Toxicology Program (NTP) Report on Carcinogens
Japan Society for Occupational Health, Recommendation of Occupational Exposure Limits
Japan Chemical Industry Association (JCIA) GHS Guideline, June 2012
JIS Z 7252:2014 Classification of chemicals based on “Globally Harmonized System of Classification and Labelling of Chemicals (GHS)”
JIS Z 7253:2012 Hazard communication of chemicals based on GHS - Labelling and Safety Data Sheet (SDS)

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