



MATERION

1. Chemical and company identification

Name of chemical (Product name)	Nickel Aluminum Targets	
Supplier's company name, address and phone number		
Company name	Materion Advanced Materials	
Address	6070 Parkland Boulevard Mayfield Heights, OH 44124 United States	
Contact person	Theodore Knudson	
Telephone	EH&S	1.216.383.4019
e-mail address	ehs@materion.com	
Emergency telephone number	See Section 16.	
Reference number	G36	

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 (inhalation)	Category 1 (Respiratory system)
Environmental hazards	The product is not classified according to GHS.	

GHS label elements

Pictograms



Signal words

Danger

Hazard statement

May cause an allergic skin reaction. Suspected of causing cancer. Causes damage to organs (respiratory system) through prolonged or repeated exposure by inhalation.

Precautionary statement

Prevention

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe dust/fume/gas/mist/vapors/spray. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves/protective clothing/eye protection/face protection.

Response

If on skin: Wash with plenty of water. If inhaled: Remove person to fresh air and keep comfortable for breathing. If exposed or concerned: Get medical advice/attention. Take off contaminated clothing and wash it 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

Prolonged exposure may cause chronic effects. May cause sensitization by skin contact.

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
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Chemical name or generic name	CAS Number	Gazette notification		Concentration (%)
		ENCS no.	ISHL no.	
Nickel	7440-02-0			98
Aluminum	7429-90-5			2 - 20

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

4. First aid measures

If inhaled	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.
If on skin	Remove contaminated clothing immediately and wash skin with soap and water. In case of eczema or other skin disorders: Seek medical attention and take along these instructions.
If in eyes	Rinse with water. Get medical attention if irritation develops and persists.
If swallowed	Rinse mouth. Get medical attention if symptoms occur.
Most important symptoms/effects, acute and delayed	May cause an allergic skin reaction. May cause respiratory irritation.
Protection of first-aid responders	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.
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.
Extinguishing media to avoid	Carbon dioxide (CO ₂).
Specific hazards	None known.
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 procedures	Keep unnecessary personnel away. For personal protection, see section 8 of the SDS.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground.
Methods and 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)	Provide adequate ventilation.
Safe handling advice	Wash hands thoroughly after handling. Observe good industrial hygiene practices. Use personal protection recommended in Section 8 of the SDS.
Contact avoidance measures	Strong acids. For further information, please refer to section 10 of the SDS.
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.
Storage	
Safe storage conditions	Store locked up. Keep container tightly closed. Store away from incompatible materials (see Section 10 of the SDS).
Safe packaging materials	Store in original tightly closed container.

8. Exposure controls/personal protection

Control parameters Follow standard monitoring procedures.

Occupational exposure limits

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

Components	Type	Value	Form
Aluminum (CAS 7429-90-5)	TLV	0.025 mg/m ³	Dust.
Nickel (CAS 7440-02-0)	TLV	0.1 mg/m ³	

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/m ³	Total dust.
		0.5 mg/m ³	Respirable dust.
Nickel (CAS 7440-02-0)	TWA	1 mg/m ³	

US. ACGIH Threshold Limit Values

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

Personal protective equipment

Respiratory protection In case of insufficient ventilation, wear suitable respiratory equipment.

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

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

Skin and body protection Wear suitable protective clothing.

9. Physical and chemical properties

Physical state	Solid.
Form	Particulate.
Color	Light grey.
Odor	None.
Odor threshold	Not applicable.
Melting point/freezing point	1220 °F (660 °C) estimated / Not applicable.
Boiling point, initial boiling point, and boiling range	Not applicable.
Combustibility	None known.
Lower and upper explosion limit / flammability limit	
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.
Flash point	Not applicable.
Auto-ignition temperature	Not applicable.
Decomposition temperature	Not applicable.
pH	Not applicable.

Kinematic viscosity	Not available.
Solubility(ies)	
Solubility (water)	Insoluble.
Partition coefficient (n-octanol/water) (log value)	Not applicable.
Vapor pressure	Not applicable.
Density and/or relative density	
Density	7.85 g/cm ³ estimated
Relative density	Not applicable.
Vapor density	Not applicable.
Particle characteristics	Not available.
Other information	
Evaporation rate	Not applicable.
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.
Viscosity (Coefficient of viscosity)	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.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Acute toxicity	Not known.
Skin corrosion/irritation	Not relevant, 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	
Nickel (CAS 7440-02-0)	2 Probable respiratory sensitizer.
Japan Society for Occupational Health: Skin sensitizer	
Nickel (CAS 7440-02-0)	1 Known skin sensitizer.
Respiratory sensitization	Not a respiratory sensitizer.
Skin sensitization	May cause sensitization by skin contact.
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	
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	May damage fertility or the unborn child.

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

Ecotoxicological data

Product	Species	Test Results
Nickel Aluminum Targets		
Aquatic		
<i>Acute</i>		
Fish	LC50	0.0612 mg/l, 4 days estimated

Components	Species	Test Results
Nickel (CAS 7440-02-0)		
Aquatic		
<i>Acute</i>		
Fish	LC50	0.06 mg/l, 4 days
	Rainbow trout,donaldson trout (Oncorhynchus mykiss)	

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.
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

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

UN number	3178
UN proper shipping name	Flammable solid, inorganic, n.o.s.
Transport hazard class(es)	
Class	4.1
Subsidiary risk	-
Packing group	III
Environmental hazards	No.
ERG Code	3L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Other information	
Passenger and cargo aircraft	Allowed with restrictions.
Cargo aircraft only	Allowed with restrictions.

IMDG

UN number	3178
UN proper shipping name	FLAMMABLE SOLID, INORGANIC, N.O.S.
Transport hazard class(es)	
Class	4.1
Subsidiary risk	-
Packing group	III
Environmental hazards	
Marine pollutant	No.
EmS	F-A, S-G
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable.
IATA; IMDG	



National regulations	Follow regulation in section 15 for domestic transportation.
Emergency Response Guide Number	133

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	2.0 - 20 %
NICKEL	Table 9 Ordinance No. 418	80 - 98 %

Labeling substances

ALUMINIUM AND ITS WATER-SOLUBLE SALTS		2.0 - 20 %
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Poisonous and Deleterious Substances Control Act

Specified poisonous substances

Not regulated.

Poisonous substances

Not regulated.

Deleterious substances

Not regulated.

Act on the Regulation of Manufacture and Evaluation of Chemical Substances

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 (AS NI) Ordinance No. 309 98 % (Nickel)

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

NICKEL Ordinance No. 308 98 % (Nickel)

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

Not regulated.

Ship Safety Law, Dangerous Goods Marine Transport and Storage Rule Flammable solid materials

Air Law, Enforcement Rule Flammable solid materials

Explosives Control Act

Not regulated.

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)

Further information

Transportation Emergency
Call Chemtrec at:
International: 703.741.5970
Spain: 900.868.538
Switzerland: 0800.564.402

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Other information

Revised information in Section 16.