



MATERION

1. Chemical and company identification

Name of chemical (Product name) Nickel Vanadium 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 G22

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, single exposure	Category 1 (kidney, respiratory system)
Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
Specific target organ toxicity, repeated exposure	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 through prolonged or repeated exposure.

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. Use only outdoors or in a well-ventilated area. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves/protective clothing/eye protection/face protection. Wear respiratory protection.

Response

IF ON SKIN: Wash with plenty of water. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF exposed or concerned: Call a POISON CENTER/doctor. If skin irritation or rash occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. If experiencing respiratory symptoms: Call a POISON CENTER/doctor. 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	Irritation of eyes. Exposed individuals may experience eye tearing, redness, and discomfort. May cause respiratory irritation. Coughing. Discomfort in the chest. Difficulty in breathing. Shortness of breath. May cause an allergic skin reaction. Dermatitis. Rash. Edema. Prolonged exposure may cause chronic effects.
Emergency overview	May cause an allergic skin reaction. Suspected of causing cancer. Prolonged exposure may cause chronic effects.

3. Composition/information on ingredients

Substance or mixture	Mixture			
		Gazette notification		
Components	CAS Number	ENCS no.	ISHL no.	Concentration (%)
Nickel	7440-02-0			95
Vanadium	7440-62-2			5 - 50

Chemical formula Ni (7440-02-0), V (7440-62-2)

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.
Protection of first-aid responders	If you feel unwell, seek medical advice (show the label where possible).
Notes to physician	Treat symptomatically.

5. Fire-fighting measures

Extinguishing media	Powder. Dry sand. Water Spray or Fog.
Extinguishing media to avoid	Carbon dioxide (CO ₂).
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 procedures	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 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	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. When using, do not eat, drink or smoke. Should be handled in closed systems, if possible. 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. Keep container tightly closed. Store in a well-ventilated place. 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
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
Nickel (CAS 7440-02-0)	TWA	1 mg/m3

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
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

Physical state Solid.

Form Solid.

Color Metallic.

Odor None.

Odor threshold Not applicable.

Melting point/freezing point 2651 °F (1455 °C) estimated / Not applicable.

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

Combustibility None known.

Lower and upper explosion limit / flammability limit

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. Not applicable.
Vapor pressure	Not applicable.
Density and/or relative density	
Density	7.94 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	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. Contact with incompatible materials.
Incompatible materials	Strong acids.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Acute toxicity	None known.
Skin corrosion/irritation	May cause skin irritation.
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 an allergic skin reaction.
Germ cell mutagenicity	Not classified.
Carcinogenicity	Suspected of causing cancer.
ACGIH Carcinogens	
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	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

Ecotoxicological data

Product	Species	Test Results
Nickel Vanadium Targets		
Aquatic		
<i>Acute</i>		
Fish	LC50 Fish	0.0632 mg/l, 4 days estimated

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

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

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

NICKEL

Table 9 Ordinance No. 418 50 - 95 %

Labeling substances

Not regulated.

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 95 % (Nickel)

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

NICKEL Ordinance No. 308 95 % (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.

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.