




# SAFETY DATA SHEET

**MATERION**

## 1. Product and company identification

<b>Name of the chemical</b>	<b>Nickel Vanadium Targets</b>	
<b>Other means of identification</b>		
SDS number	G22	
<b>Recommended use of the chemical and restrictions on use</b>		
<b>Recommended use</b>	Manufacture of computer, electronic and optical products, electrical equipment Scientific research and development Other: Manufacture of medical and defense equipment	
<b>Recommended restrictions</b>	Professional uses: Public domain (administration, education, entertainment, services, craftsmen) Consumer uses: Private households (= general public = consumers)	
<b>Manufacturer/Importer/Supplier/ Distributor information</b>	Materion Advanced Materials	
<b>Address</b>	6070 Parkland Boulevard Mayfield Heights OH 44124 United States	
<b>Telephone</b>	EH&S	1.216.383.4019
<b>E-mail</b>	ehs@materion.com	
<b>Contact person</b>	Theodore Knudson	
<b>Emergency telephone number</b>	See Section 16.	

## 2. Hazards identification

<b>Hazard classification</b>		
<b>Physical hazards</b>	Not classified.	
<b>Health hazards</b>	Sensitization, skin	Category 1
	Carcinogenicity	Category 2
	Specific target organ toxicity, repeated exposure	Category 1 (Respiratory system)
<b>Environmental hazards</b>	Not classified.	
<b>Label elements</b>		
<b>Symbols</b>		
<b>Signal word</b>	Danger	
<b>Hazard statement</b>	May cause an allergic skin reaction. Suspected of causing cancer. Causes damage to organs through prolonged or repeated exposure.	
<b>Precautionary statement</b>		
<b>Prevention</b>	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. Wear respiratory protection.	
<b>Response</b>	IF ON SKIN: Wash with plenty of water. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF exposed or concerned: Call a POISON CENTER/doctor. If skin irritation or rash occurs: Get medical advice/attention. If experiencing respiratory symptoms: Call a POISON CENTER/doctor. Take off contaminated clothing and wash it before reuse.	
<b>Storage</b>	Store locked up.	
<b>Disposal</b>	Dispose of contents/container in accordance with local/regional/national/international regulations.	
<b>Other hazards</b>	None known.	

### 3. Composition/information on ingredients

#### Mixture

Chemical properties	CAS Number	Concentration (%)
Nickel	7440-02-0	50 - 95
Vanadium	7440-62-2	5 - 50

### 4. First aid measures

#### First aid measures for different exposure routes

<b>Inhalation</b>	If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If experiencing respiratory symptoms: Call a poison center or doctor/physician.
<b>Skin contact</b>	Wash off with soap and water. Get medical attention if irritation develops and persists.
<b>Eye contact</b>	Rinse with water. Get medical attention if irritation develops and persists.
<b>Ingestion</b>	Rinse mouth. Get medical attention if symptoms occur.
<b>Most important symptoms and effects</b>	May cause an allergic skin reaction.
<b>Personal protection for first-aid responders</b>	If you feel unwell, seek medical advice (show the label where possible).
<b>Notes to physician</b>	Treat symptomatically.

### 5. Fire-fighting measures

<b>Extinguishing media</b>	Powder. Dry sand. Water Spray or Fog.
<b>Extinguishing media to avoid</b>	Carbon dioxide (CO <sub>2</sub> ).
<b>Specific hazards during fire fighting</b>	No unusual fire or explosion hazards noted.
<b>Special fire fighting procedures</b>	Move containers from fire area if you can do so without risk.
<b>Protection of fire-fighters</b>	Wear suitable protective equipment.
<b>General fire hazards</b>	No unusual fire or explosion hazards noted.
<b>Specific methods</b>	Use standard firefighting procedures and consider the hazards of other involved materials.

### 6. Accidental release measures

<b>Personal precautions</b>	Keep unnecessary personnel away. Wear appropriate protective equipment and clothing during clean-up. For personal protection, see section 8 of the SDS.
<b>Environmental precautions</b>	Avoid discharge into drains, water courses or onto the ground.
<b>Spill cleanup methods</b>	Stop the flow of material, if this is without risk. For waste disposal, see section 13 of the SDS.

### 7. Handling and storage

<b>Handling</b>	Do not handle until all safety precautions have been read and understood. Wear appropriate personal protective equipment. Wash hands thoroughly after handling.
<b>Storage</b>	Store locked up. Store away from incompatible materials (see Section 10 of the SDS).

### 8. Exposure controls/personal protection

#### Exposure limits

##### OELs. (Standards on Workplace Atmosphere of Dangerous and Hazardous Materials)

Components	Type	Value
Nickel (CAS 7440-02-0)	STEL	2 mg/m <sup>3</sup>
	TWA	1 mg/m <sup>3</sup>

##### US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Nickel (CAS 7440-02-0)	TWA	1.5 mg/m <sup>3</sup>	Inhalable fraction.

**Biological limit values** No biological exposure limits noted for the ingredient(s).

**Appropriate engineering controls** 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.

**Individual protection measures, such as personal protective equipment**

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

**Skin protection**

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

**Other** Use personal protective equipment as required.

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

**Thermal hazards** Wear appropriate thermal protective clothing, when necessary.

**General hygiene considerations** Observe any medical surveillance requirements. Contaminated work clothing should not be allowed out of the workplace.

## 9. Physical and chemical properties

### Appearance

**Physical state** Solid.

**Form** Solid.

**Color** Metallic.

**Odor** None.

**Odor threshold** Not applicable.

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

**pH** Not applicable.

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

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

**Flash point** Not applicable.

**Decomposition temperature** Not applicable.

**Auto-ignition temperature** Not applicable.

### 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.

**Density** 7.94 g/cm<sup>3</sup> estimated

### Solubility(ies)

**Solubility (water)** Insoluble.

**Partition coefficient** Not applicable.

**(n-octanol/water)** Not applicable.

**Evaporation rate** Not applicable.

### Other data

**Explosive properties** Not explosive.

**Oxidizing properties** Not oxidizing.

**Viscosity** Not applicable.

## 10. Stability and reactivity

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

**Stability** Material is stable under normal conditions.

<b>Possibility of hazardous reactions</b>	No dangerous reaction known under conditions of normal use.
<b>Conditions to avoid</b>	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. Contact with incompatible materials.
<b>Incompatible materials</b>	Strong acids.
<b>Hazardous decomposition products</b>	No hazardous decomposition products are known.

## 11. Toxicological information

### Information on likely routes of exposure

<b>Inhalation</b>	Prolonged inhalation may be harmful.
<b>Skin contact</b>	May cause an allergic skin reaction.
<b>Eye contact</b>	Not likely, due to the form of the product.
<b>Ingestion</b>	Expected to be a low ingestion hazard.

**Symptoms** May cause an allergic skin reaction.

### Information on toxicological effects

<b>Acute toxicity</b>	None known.
<b>Skin corrosion/irritation</b>	May cause skin irritation.
<b>Serious eye damage/eye irritation</b>	Not likely, due to the form of the product.
<b>Respiratory or skin sensitization</b>	
<b>Respiratory sensitization</b>	Not a respiratory sensitizer.
<b>Skin sensitization</b>	May cause an allergic skin reaction.
<b>Germ cell mutagenicity</b>	Not classified.
<b>Carcinogenicity</b>	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.

<b>Reproductive toxicity</b>	Not classified.
<b>Specific target organ toxicity - single exposure</b>	Not classified.
<b>Specific target organ toxicity - repeated exposure</b>	Causes damage to organs through prolonged or repeated exposure.
<b>Aspiration hazard</b>	Not an aspiration hazard.
<b>Chronic effects</b>	Causes damage to organs through prolonged or repeated exposure.

## 12. Ecological information

**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.

Product	Species	Test Results
Nickel Vanadium Targets		
<b>Aquatic</b>		
<i>Acute</i>		
Fish	LC50	0.0632 mg/l, 4 days estimated
<b>Components</b>	<b>Species</b>	<b>Test Results</b>
Nickel (CAS 7440-02-0)		
<b>Aquatic</b>		
<i>Acute</i>		
Fish	LC50	0.06 mg/l, 4 days
	Rainbow trout,donaldson trout (Oncorhynchus mykiss)	

<b>Persistence and degradability</b>	No data is available on the degradability of any ingredients in the mixture.
<b>Bioaccumulation</b>	No data available.
<b>Mobility in soil</b>	No data available for this product.
<b>Other hazardous effects</b>	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

<b>Disposal instructions</b>	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.
<b>Residual waste</b>	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).
<b>Contaminated packaging</b>	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.
<b>Local disposal regulations</b>	Dispose in accordance with all applicable regulations.

### 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.

### 15. Regulatory information

**Applicable regulations** Methods and Facilities Standards for the Storage, Clearance and Disposal of Industrial Waste  
Regulations for the Labeling and Hazard Communication of Hazardous Chemicals  
Toxic Chemical Substances Control Act  
Toxic Chemical Substances Labeling and Materials Safety Data Sheets Regulations  
This material safety data sheet was prepared in accordance with the Regulation of Labeling and Hazard Communication of Hazardous Chemicals.

#### Methods and Facilities Standards for the Storage, Clearance and Disposal of Industrial Waste

Nickel (CAS 7440-02-0) Listed.

#### Priority Management Chemical List (Regulations on Handling Priority Managed Chemicals), as amended

Nickel (CAS 7440-02-0)

#### Toxic Chemical Substances (TCS) List (EPA Toxic Substances Notice No. 0960095331E, Tables 1-3, Dec. 17, 2007, as amended)

Not listed.

#### Standards on Workplace Atmosphere of Dangerous and Hazardous Materials

Nickel (CAS 7440-02-0) Listed.

#### Specified Hazardous Chemicals (Guidelines for Prevention of Danger Posed by Special Hazardous Chemicals (CLA No. 659306)

Nickel (CAS 7440-02-0) Class 3 Category C

#### GHS Classification List: GHS implementation phase 1, 2 and 3 (CLA No. 0980145063, 0990146707, and 1020146801)

Nickel (CAS 7440-02-0)

#### International regulations

##### Stockholm Convention

Not applicable.

##### Rotterdam Convention

Not applicable.

##### Montreal Protocol

Not applicable.

##### Kyoto protocol

Not applicable.

**Basel Convention**

Not applicable.

**International Inventories**

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	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****References**

ACGIH  
 EPA: ACQUIRE database  
 NLM: Hazardous Substances Data Base  
 US. IARC Monographs on Occupational Exposures to Chemical Agents  
 Taiwan. Dangerous Materials (Rules on Hazard Communication of Dangerous Materials and Toxic Materials)  
 Taiwan. Industrial Precursor Chemicals (Categories and Regulations Governing Inspection and Declaration of Industrial Precursor Chemicals, MOEA Decree No. 87, as amended)  
 Taiwan. OELs. (Standards on Workplace Atmosphere of Dangerous and Hazardous Materials)  
 Taiwan. Toxic Chemical Substances (TCS) (List of Toxic Chemical Substances announced by the Environmental Protection Administration)  
 Taiwan. Toxic Materials (Rules on Hazard Communication of Dangerous Materials and Toxic Materials)

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**Prepared by**

Not available.