

**MATERION****1. Chemical and company identification**

|                                 |                                           |
|---------------------------------|-------------------------------------------|
| Name of chemical (Product name) | Nickel Vanadium Targets                   |
| Company name                    | Materion Advanced Materials Germany GmbH  |
| Address                         | Borsigstrasse 10<br>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                | 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, repeated exposure | Category 1 (respiratory system) |
| 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. 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

| Components | CAS Number | Gazette notification |          | Concentration (%) |
|------------|------------|----------------------|----------|-------------------|
|            |            | ENCS no.             | ISHL no. |                   |
| 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<sub>2</sub>).

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)

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

### 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

### Appearance

**Physical state** Solid.

**Form** Solid.

**Color** Metallic.

**Odor** None.

**Odor threshold** Not applicable.

**pH** Not applicable.

**Melting point/Freezing point** 2651 °F (1455 °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.

|                                                |                                  |
|------------------------------------------------|----------------------------------|
| <b>Solubility(ies)</b>                         |                                  |
| <b>Solubility (water)</b>                      | Insoluble.                       |
| <b>Partition coefficient (n-octanol/water)</b> | Not applicable.                  |
| <b>Auto-ignition temperature</b>               | Not applicable.                  |
| <b>Decomposition temperature</b>               | Not applicable.                  |
| <b>Viscosity (Coefficient of viscosity)</b>    | Not applicable.                  |
| <b>Other information</b>                       |                                  |
| <b>Density</b>                                 | 7.94 g/cm <sup>3</sup> estimated |
| <b>Explosive properties</b>                    | Not explosive.                   |
| <b>Oxidizing properties</b>                    | Not oxidizing.                   |
| <b>Relative density</b>                        | Not applicable.                  |

## 10. Stability and reactivity

|                                           |                                                                                                                         |
|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| <b>Reactivity</b>                         | The product is stable and non-reactive under normal conditions of use, storage and transport.                           |
| <b>Chemical stability</b>                 | 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

|                                                                      |                                                                                   |
|----------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| <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>Japan Society for Occupational Health: Respiratory sensitizer</b> |                                                                                   |
| Nickel (CAS 7440-02-0)                                               | 2 Probable respiratory sensitizer.                                                |
| <b>Japan Society for Occupational Health: Skin sensitizer</b>        |                                                                                   |
| Nickel (CAS 7440-02-0)                                               | 1 Known skin sensitizer.                                                          |
| <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.                                                      |
| <b>ACGIH Carcinogens</b>                                             |                                                                                   |
| Nickel (CAS 7440-02-0)                                               | A5 Not suspected as a human carcinogen.                                           |
| <b>IARC Monographs. Overall Evaluation of Carcinogenicity</b>        |                                                                                   |
| Nickel (CAS 7440-02-0)                                               | 2B Possibly carcinogenic to humans.                                               |
| <b>Japan Society for Occupational Health: Carcinogen</b>             |                                                                                   |
| Nickel (CAS 7440-02-0)                                               | 1 Carcinogenic to humans.                                                         |
| <b>NTP Report on Carcinogens</b>                                     |                                                                                   |
| Nickel (CAS 7440-02-0)                                               | Known To Be Human Carcinogen.<br>Reasonably Anticipated to be a Human Carcinogen. |
| <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.                   |

Aspiration hazard Not an aspiration hazard.

## 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.

**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

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 Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.

#### Class I specified chemical substances

Not regulated.

#### Class II specified chemical substances

Not regulated.

