



# PRODUCT INFORMATION SHEET

**MATERION**

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1. Product identifier

**Trade name or designation of the mixture** Chromium Nickel Aluminum Targets  
**Registration number** -  
**Document number** G19  
**Synonyms** None.  
**Issue date** 07-February-2019  
**Version number** 02

### 1.3. Details of the supplier of the product information sheet

#### Supplier

**Company name** Materion Advanced Materials Germany GmbH  
**Address** Borsigstrasse 10  
63755 Alzenau  
DE

#### Division

**Telephone** 49.60.23.91.82.0 H. Schmiing

**e-mail** Materion.Germany@materion.com

**Contact person** Hermann Schmiing

**1.4. Emergency telephone number** 49.60.23.91.82.0 H. Schmiing

**Revision date** 02-February-2021

**Supersedes date** 07-February-2019

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

**Identified uses** Manufacture of computer, electronic and optical products, electrical equipment  
Scientific research and development  
Other: Manufacture of medical and defense equipment

**Uses advised against** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)  
Consumer uses: Private households (= general public = consumers)

### 1.3. Details of the supplier of the safety data sheet

#### Supplier

**Company name** Materion Advanced Materials Germany GmbH  
**Address** Borsigstrasse 10  
63755 Alzenau  
DE

#### Division

**Telephone** 49.60.23.91.82.0 H. Schmiing

**e-mail** Materion.Germany@materion.com

**Contact person** Hermann Schmiing

**1.4. Emergency telephone number** 49.60.23.91.82.0 H. Schmiing

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

The mixture has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

#### Classification according to Regulation (EC) No 1272/2008 as amended

##### Health hazards

Skin sensitisation Category 1 H317 - May cause an allergic skin reaction.

Carcinogenicity Category 2 H351 - Suspected of causing cancer.

Specific target organ toxicity - single exposure Category 3 respiratory tract irritation

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

## 2.2. Label elements

### Label according to Regulation (EC) No. 1272/2008 as amended

**Contains:** Aluminium, Chromium, NICKEL POWDER; [PARTICLE DIAMETER < 1MM]

#### Hazard pictograms



#### Signal word

Danger

#### Hazard statements

H317 May cause an allergic skin reaction.  
 H351 Suspected of causing cancer.  
 H372 Causes damage to organs through prolonged or repeated exposure.

### Precautionary statements

#### Prevention

P201 Obtain special instructions before use.  
 P202 Do not handle until all safety precautions have been read and understood.  
 P260 Do not breathe dust/fume/gas/mist/vapours/spray.  
 P264 Wash thoroughly after handling.  
 P270 Do not eat, drink or smoke when using this product.  
 P272 Contaminated work clothing should not be allowed out of the workplace.  
 P280 Wear protective gloves/protective clothing/eye protection/face protection.

#### Response

P302 + P350 If on skin: Wash with plenty of water.  
 P308 + P313 If exposed or concerned: Get medical advice/attention.  
 P333 + P313 If skin irritation or rash occurs: Get medical advice/attention.  
 P363 Wash contaminated clothing before reuse.

#### Storage

P405 Store locked up.

#### Disposal

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

### Supplemental label information

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

**2.3. Other hazards** Not a PBT or vPvB substance or mixture.

## SECTION 3: Composition/information on ingredients

### 3.2. Mixtures

#### General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	Index No.	Notes
Aluminium	58 - 90	7429-90-5 231-072-3	01-2119529243-45-0056	013-002-00-1	
<b>Classification:</b> -					T
Chromium	5 - 30	7440-47-3 231-157-5	-	-	#
<b>Classification:</b> STOT RE 1;H372					
NICKEL POWDER; [PARTICLE DIAMETER < 1MM]	5 - 12	7440-02-0 231-111-4	01-2119438727-29-0049	028-002-00-7	
<b>Classification:</b> Skin Sens. 1;H317, STOT SE 3;H335, Carc. 2;H351, STOT RE 2;H373					7,S

## SECTION 4: First aid measures

### General information

If exposed or concerned: get medical attention/advice.

#### 4.1. Description of first aid measures

##### Inhalation

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

**Skin contact** Wash off with soap and water. Get medical attention if irritation develops and persists.

**Eye contact** Rinse with water. If eye irritation persists: Get medical advice/attention.

**Ingestion** Rinse mouth. Get medical attention if symptoms occur.

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

**4.3. Indication of any immediate medical attention and special treatment needed** Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

## SECTION 5: Firefighting measures

**General fire hazards** No unusual fire or explosion hazards noted.

### 5.1. Extinguishing media

**Suitable extinguishing media** Powder. Dry sand. Water Spray or Fog

**Unsuitable extinguishing media** Carbon dioxide (CO<sub>2</sub>).

**5.2. Special hazards arising from the substance or mixture** No unusual fire or explosion hazards noted.

### 5.3. Advice for firefighters

**Special protective equipment for firefighters** Wear suitable protective equipment.

**Special firefighting procedures** Move containers from fire area if you can do so without risk.

**Specific methods** Use standard firefighting procedures and consider the hazards of other involved materials.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

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

**For emergency responders** Keep unnecessary personnel away. Use personal protection recommended in Section 8 of the SDS.

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

**6.3. Methods and material for containment and cleaning up** Stop the flow of material, if this is without risk.

**6.4. Reference to other sections** For personal protection, see section 8. For waste disposal, see section 13.

## SECTION 7: Handling and storage

**7.1. Precautions for safe handling** Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid breathing dust/fume/gas/mist/vapours/spray. Wear appropriate personal protective equipment. Wash hands thoroughly after handling.

**7.2. Conditions for safe storage, including any incompatibilities** Store locked up. Store away from incompatible materials (see Section 10 of the SDS).

**7.3. Specific end use(s)** Not available.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### Occupational exposure limits

**Austria. MAK List, OEL Ordinance (GwV), BGBl. II, no. 184/2001**

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	MAK	5 mg/m <sup>3</sup>	Respirable fraction.
		10 mg/m <sup>3</sup>	Inhalable fraction.
	STEL	20 mg/m <sup>3</sup>	Inhalable fraction.
		10 mg/m <sup>3</sup>	Respirable fraction.
Chromium (CAS 7440-47-3)	MAK	2 mg/m <sup>3</sup>	

**Austria. TRK List, OEL Ordinance (GwV), BGBl. II, no. 184/2001**

Components	Type	Value	Form
NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0)	STEL	2 mg/m <sup>3</sup>	Inhalable dust.
	TWA	0,5 mg/m <sup>3</sup>	Inhalable dust.

**Belgium. Exposure Limit Values**

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	1 mg/m <sup>3</sup>	Respirable fraction.
Chromium (CAS 7440-47-3)	TWA	0,5 mg/m <sup>3</sup>	
NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0)	TWA	1 mg/m <sup>3</sup>	

**Bulgaria. OELs. Regulation No 13 on protection of workers against risks of exposure to chemical agents at work**

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	2 mg/m <sup>3</sup>	
		10 mg/m <sup>3</sup>	Dust.
		1,5 mg/m <sup>3</sup>	Respirable fraction.
Chromium (CAS 7440-47-3)	TWA	2 mg/m <sup>3</sup>	
NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0)	TWA	0,05 mg/m <sup>3</sup>	

**Croatia. Dangerous Substance Exposure Limit Values in the Workplace (ELVs), Annexes 1 and 2, Narodne Novine, 13/09**

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	MAC	4 mg/m <sup>3</sup>	Respirable dust.
		10 mg/m <sup>3</sup>	Total dust.
Chromium (CAS 7440-47-3)	MAC	2 mg/m <sup>3</sup>	
NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0)	MAC	0,5 mg/m <sup>3</sup>	

**Cyprus. OELs. Control of factory atmosphere and dangerous substances in factories regulation, PI 311/73, as amended.**

Components	Type	Value
NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0)	TWA	1 mg/m <sup>3</sup>

**Czech Republic. OELs. Government Decree 361**

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	10 mg/m <sup>3</sup>	Dust.
Chromium (CAS 7440-47-3)	Ceiling	1,5 mg/m <sup>3</sup>	Aerosol, inhalable.
		0,5 mg/m <sup>3</sup>	Aerosol, inhalable.
		0,5 mg/m <sup>3</sup>	Dust.
NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0)	Ceiling	1 mg/m <sup>3</sup>	Aerosol, inhalable.
		TWA	0,5 mg/m <sup>3</sup>

**Denmark. Exposure Limit Values**

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TLV	5 mg/m <sup>3</sup>	Dust and fume.
		5 mg/m <sup>3</sup>	Fume.
		2 mg/m <sup>3</sup>	Respirable dust and/or fume.
Chromium (CAS 7440-47-3)	TLV	0,5 mg/m <sup>3</sup>	Dust.

**Denmark. Exposure Limit Values Components**

Components	Type	Value	Form
NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0)	TLV	0,05 mg/m3	Dust.

**Estonia. OELs. Occupational Exposure Limits of Hazardous Substances (Regulation No. 105/2001, Annex), as amended**

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	4 mg/m3	Fine dust, respiratory fraction
		10 mg/m3	Total dust.
Chromium (CAS 7440-47-3)	TWA	2 mg/m3	
NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0)	TWA	0,5 mg/m3	

**Finland. Workplace Exposure Limits Components**

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	1,5 mg/m3	Welding fume.
Chromium (CAS 7440-47-3)	TWA	0,5 mg/m3	
NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0)	TWA	0,01 mg/m3	Respirable.

**France. Threshold Limit Values (VLEP) for Occupational Exposure to Chemicals in France, INRS ED 984**

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	VME	5 mg/m3	Dust.
<b>Regulatory status:</b> Indicative limit (VL)			
		5 mg/m3	Welding fume.
<b>Regulatory status:</b> Indicative limit (VL)			
		10 mg/m3	
<b>Regulatory status:</b> Indicative limit (VL)			
Chromium (CAS 7440-47-3)	VME	2 mg/m3	
<b>Regulatory status:</b> Regulatory indicative (VRI)			
NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0)	VME	1 mg/m3	
<b>Regulatory status:</b> Indicative limit (VL)			

**Germany. DFG MAK List (advisory OELs). Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area (DFG)**

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	4 mg/m3	Inhalable dust.
		1,5 mg/m3	Respirable dust.

**Germany. TRGS 900, Limit Values in the Ambient Air at the Workplace**

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	AGW	10 mg/m3	Inhalable fraction.
		1,25 mg/m3	Respirable fraction.
Chromium (CAS 7440-47-3)	AGW	2 mg/m3	Inhalable fraction.
NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0)	AGW	0,03 mg/m3	Inhalable fraction.
		0,006 mg/m3	Respirable fraction.

**Greece. OELs (Decree No. 90/1999, as amended)**

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	5 mg/m3	Inhalable
		10 mg/m3	Pyrophoric powder.
		10 mg/m3	Welding fume.

**Greece. OELs (Decree No. 90/1999, as amended)**

Components	Type	Value	Form
		10 mg/m3	Respirable.
Chromium (CAS 7440-47-3)	TWA	1 mg/m3	
NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0)	TWA	1 mg/m3	

**Hungary. OELs. Joint Decree on Chemical Safety of Workplaces**

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	6 mg/m3	Respirable.
Chromium (CAS 7440-47-3)	TWA	2 mg/m3	
NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0)	Ceiling	0,1 mg/m3	

**Iceland. OELs. Regulation 154/1999 on occupational exposure limits**

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	STEL	10 mg/m3	Dust.
	TWA	5 mg/m3	Dust.
Chromium (CAS 7440-47-3)	TWA	0,5 mg/m3	Dust.
NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0)	TWA	0,05 mg/m3	Dust.

**Ireland. Occupational Exposure Limits**

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	1 ppm	Respirable dust.
Chromium (CAS 7440-47-3)	TWA	2 mg/m3	
NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0)	TWA	0,5 mg/m3	

**Italy. Occupational Exposure Limits**

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	1 mg/m3	Respirable fraction.
Chromium (CAS 7440-47-3)	TWA	0,5 mg/m3	
NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0)	TWA	1,5 mg/m3	Inhalable fraction.

**Latvia. OELs. Occupational exposure limit values of chemical substances in work environment**

Components	Type	Value	
Aluminium (CAS 7429-90-5)	TWA	2 mg/m3	
Chromium (CAS 7440-47-3)	TWA	2 mg/m3	
NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0)	TWA	0,05 mg/m3	

**Lithuania. OELs. Limit Values for Chemical Substances, General Requirements**

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	5 mg/m3	Inhalable fraction.
		2 mg/m3	Respirable fraction.
Chromium (CAS 7440-47-3)	TWA	2 mg/m3	
NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0)	TWA	0,5 mg/m3	

**Luxembourg. Binding Occupational exposure limit values (Annex I), Memorial A**

Components	Type	Value	
Chromium (CAS 7440-47-3)	TWA	2 mg/m3	

**Netherlands. OELs (binding)**

Components	Type	Value
Chromium (CAS 7440-47-3)	TWA	0,5 mg/m <sup>3</sup>

**Norway. Administrative Norms for Contaminants in the Workplace**

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TLV	5 mg/m <sup>3</sup>	Pyrophoric powder.
		5 mg/m <sup>3</sup>	Welding fume.
Chromium (CAS 7440-47-3)	TLV	0,5 mg/m <sup>3</sup>	
NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0)	TLV	0,05 mg/m <sup>3</sup>	

**Poland. Ordinance of the Minister of Labour and Social Policy on 6 June 2014 on the maximum permissible concentrations and intensities of harmful health factors in the work environment, Journal of Laws 2014, item 817**

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	2,5 mg/m <sup>3</sup>	Inhalable fraction.
		1,2 mg/m <sup>3</sup>	Respirable fraction.
Chromium (CAS 7440-47-3)	TWA	0,5 mg/m <sup>3</sup>	
NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0)	TWA	0,25 mg/m <sup>3</sup>	

**Portugal. OELs. Decree-Law n. 290/2001 (Journal of the Republic - 1 Series A, n.266)**

Components	Type	Value
Chromium (CAS 7440-47-3)	TWA	2 mg/m <sup>3</sup>

**Portugal. VLEs. Norm on occupational exposure to chemical agents (NP 1796)**

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	1 mg/m <sup>3</sup>	Respirable fraction.
Chromium (CAS 7440-47-3)	TWA	0,5 mg/m <sup>3</sup>	
NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0)	TWA	1,5 mg/m <sup>3</sup>	Inhalable fraction.

**Romania. OELs. Protection of workers from exposure to chemical agents at the workplace**

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	STEL	3 mg/m <sup>3</sup>	Fume.
		10 mg/m <sup>3</sup>	Dust.
	TWA	3 mg/m <sup>3</sup>	Dust.
		1 mg/m <sup>3</sup>	Fume.
Chromium (CAS 7440-47-3)	TWA	2 mg/m <sup>3</sup>	
NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0)	STEL	0,5 mg/m <sup>3</sup>	
	TWA	0,1 mg/m <sup>3</sup>	

**Slovakia. OELs for carcinogens and mutagens. Regulation No. 46/2002 on carcinogenic and mutagenic substances**

Components	Type	Value	Form
NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0)	TWA	0,05 mg/m <sup>3</sup>	Inhalable fraction.

**Slovakia. OELs. Regulation No. 300/2007 concerning protection of health in work with chemical agents**

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	4 mg/m <sup>3</sup>	Inhalable fraction.
		1,5 mg/m <sup>3</sup>	Respirable fraction.

**Slovenia. OELs. Regulations concerning protection of workers against risks due to exposure to chemicals while working (Official Gazette of the Republic of Slovenia)**

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	10 mg/m <sup>3</sup>	Inhalable fraction.

**Slovenia. OELs. Regulations concerning protection of workers against risks due to exposure to chemicals while working (Official Gazette of the Republic of Slovenia)**

Components	Type	Value	Form
Chromium (CAS 7440-47-3) NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0)	TWA	1,25 mg/m <sup>3</sup>	Respirable fraction.
		2 mg/m <sup>3</sup>	Inhalable fraction.
	TWA	0,006 mg/m <sup>3</sup>	Respirable fraction.

**Spain. Occupational Exposure Limits**

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	5 mg/m <sup>3</sup>	Welding fume.
		10 mg/m <sup>3</sup>	Dust.
Chromium (CAS 7440-47-3) NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0)	TWA	2 mg/m <sup>3</sup>	
	TWA	1 mg/m <sup>3</sup>	

**Sweden. OELs. Work Environment Authority (AV), Occupational Exposure Limit Values (AFS 2015:7)**

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	5 mg/m <sup>3</sup>	Total dust.
		2 mg/m <sup>3</sup>	Respirable dust.
Chromium (CAS 7440-47-3) NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0)	TWA	0,5 mg/m <sup>3</sup>	Total dust.
	TWA	0,5 mg/m <sup>3</sup>	Total dust.

**Switzerland. SUVA Grenzwerte am Arbeitsplatz**

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	3 mg/m <sup>3</sup>	Respirable fraction.
Chromium (CAS 7440-47-3)	TWA	0,5 mg/m <sup>3</sup>	Inhalable fraction.
NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0)	TWA	0,5 mg/m <sup>3</sup>	Inhalable fraction.

**UK. EH40 Workplace Exposure Limits (WELs)**

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	4 mg/m <sup>3</sup>	Respirable dust.
		10 mg/m <sup>3</sup>	Inhalable dust.
Chromium (CAS 7440-47-3) NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0)	TWA	0,5 mg/m <sup>3</sup>	
	TWA	0,5 mg/m <sup>3</sup>	

**EU. Indicative Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU**

Components	Type	Value
Chromium (CAS 7440-47-3)	TWA	2 mg/m <sup>3</sup>

**Biological limit values**

**Croatia. BLV. Dangerous Substance Exposure Limit Values at Workplace, Annexes 4 (as amended)**

Components	Value	Determinant	Specimen	Sampling Time
Aluminium (CAS 7429-90-5)	200 mg/l	Aluminium	Urine	*

\* - For sampling details, please see the source document.

**Czech Republic. Limit Values for Indicators of Biological Exposure Tests in Urine and Blood, Annex 2, Tables 1 and 2, Government Decree 432/2003 Sb.**

Components	Value	Determinant	Specimen	Sampling Time
Chromium (CAS 7440-47-3)	0,065 µmol/mmol	Total chromium	Creatinine in urine	*
	0,03 mg/g	Total chromium	Creatinine in urine	*



**Czech Republic. Limit Values for Indicators of Biological Exposure Tests in Urine and Blood, Annex 2, Tables 1 and 2, Government Decree 432/2003 Sb.**

Components	Value	Determinant	Specimen	Sampling Time
NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0)	0,077 µmol/mmol	Nickel	Creatinine in urine	*
	0,04 mg/g	Nickel	Creatinine in urine	*

\* - For sampling details, please see the source document.

**Finland. HTP-arvot, App 2., Biological Limit Values, (BRA/BGV) , Social Affairs and Ministry of Health**

Components	Value	Determinant	Specimen	Sampling Time
NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0)	0,1 umol/l	Nickel	Urine	*

\* - For sampling details, please see the source document.

**Germany. TRGS 903, BAT List (Biological Limit Values)**

Components	Value	Determinant	Specimen	Sampling Time
Aluminium (CAS 7429-90-5)	50 µg/g	Aluminium	Urine	*

\* - For sampling details, please see the source document.

**Hungary. Chemical Safety at Workplace Ordinance Joint Decree No. 25/2000 (Annex 2): Permissible limit values of biological exposure (effect) indices**

Components	Value	Determinant	Specimen	Sampling Time
Chromium (CAS 7440-47-3)	0,02 mg/g	chromium	Creatinine in urine	*
	0,043 µmol/mmol	chromium	Creatinine in urine	*
NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0)	0,02 mg/g	Nickel	Creatinine in urine	*
	0,038 µmol/mmol	Nickel	Creatinine in urine	*

\* - For sampling details, please see the source document.

**Slovakia. BLVs (Biological Limit Value). Regulation no. 355/2006 concerning protection of workers exposed to chemical agents, Annex 2**

Components	Value	Determinant	Specimen	Sampling Time
Aluminium (CAS 7429-90-5)	60 µg/g	Aluminium	Creatinine in urine	*

\* - For sampling details, please see the source document.

**Spain. Biological Limit Values (VLBs), Occupational Exposure Limits for Chemical Agents, Table 4**

Components	Value	Determinant	Specimen	Sampling Time
Chromium (CAS 7440-47-3)	25 µg/l	Cromo total	Urine	*
	10 µg/l	Cromo total	Urine	*

\* - For sampling details, please see the source document.

**Switzerland. BAT-Werte (Biological Limit Values in the Workplace as per SUVA)**

Components	Value	Determinant	Specimen	Sampling Time
Aluminium (CAS 7429-90-5)	60 µg/g	Aluminium	Creatinine in urine	*
NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0)	45 µg/l	Nickel	Urine	*

\* - For sampling details, please see the source document.

**UK. EH40 Biological Monitoring Guidance Values (BMGVs)**

Components	Value	Determinant	Specimen	Sampling Time
Chromium (CAS 7440-47-3)	10 umol/mol	Chromium	Creatinine in urine	*

\* - For sampling details, please see the source document.

**Recommended monitoring procedures** Follow standard monitoring procedures.

**Derived no effect levels (DNELs)** Not available.

**Predicted no effect concentrations (PNECs)** Not available.

#### Exposure guidelines

**Slovenia. OELs. Regulations concerning protection of workers against risks due to exposure to chemicals while working (Official Gazette of the Republic of Slovenia)**

NICKEL POWDER; [PARTICLE DIAMETER < 1MM] Can be absorbed through the skin.  
(CAS 7440-02-0)

#### 8.2. Exposure controls

**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.

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

**General information** Use personal protective equipment as required.

**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.

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

**Environmental exposure 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.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

#### Appearance

**Physical state** Solid.

**Form** Solid.

**Colour** Grey metallic.

**Odour** None.

**Odour threshold** Not applicable.

**pH** Not applicable.

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

**Initial boiling point and boiling range** Not applicable.

**Flash point** Not applicable.

**Evaporation rate** Not applicable.

**Flammability (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.

**Vapour pressure** Not applicable.

**Vapour density** Not applicable.

**Relative density** Not applicable.

<b>Solubility(ies)</b>	
<b>Solubility (water)</b>	Insoluble.
<b>Partition coefficient (n-octanol/water)</b>	Not applicable. Not applicable.
<b>Auto-ignition temperature</b>	Not applicable.
<b>Decomposition temperature</b>	Not applicable.
<b>Viscosity</b>	Not applicable.
<b>Explosive properties</b>	Not explosive.
<b>Oxidising properties</b>	Not oxidising.
<b>9.2. Other information</b>	
<b>Density</b>	7,30 - 8,50 g/cm <sup>3</sup>
<b>Surface tension</b>	Not applicable.

## SECTION 10: Stability and reactivity

<b>10.1. Reactivity</b>	The product is stable and non-reactive under normal conditions of use, storage and transport.
<b>10.2. Chemical stability</b>	Material is stable under normal conditions.
<b>10.3. Possibility of hazardous reactions</b>	No dangerous reaction known under conditions of normal use.
<b>10.4. Conditions to avoid</b>	Contact with incompatible materials.
<b>10.5. Incompatible materials</b>	Strong acids. Strong oxidising agents.
<b>10.6. Hazardous decomposition products</b>	No hazardous decomposition products are known.

## SECTION 11: Toxicological information

**General information** Occupational exposure to the substance or mixture may cause adverse effects.

### 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>	Direct contact with eyes may cause temporary irritation.
<b>Ingestion</b>	May cause discomfort if swallowed. However, ingestion is not likely to be a primary route of occupational exposure.

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

### 11.1. Information on toxicological effects

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

#### Hungary. 26/2000 EüM Ordinance on protection against and preventing risk relating to exposure to carcinogens at work (as amended)

Not listed.

#### IARC Monographs. Overall Evaluation of Carcinogenicity

Chromium (CAS 7440-47-3)	3 Not classifiable as to carcinogenicity to humans.
NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0)	2B Possibly carcinogenic to humans.

#### Slovenia. OELs. Regulations concerning protection of workers against risks due to exposure to chemicals while working (Official Gazette of the Republic of Slovenia)

Aluminium (CAS 7429-90-5)	Carcinogenic, Category 1A
NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0)	Carcinogenic, Category 2.

**Reproductive toxicity** Not classified.

**Specific target organ toxicity - single exposure** 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>Mixture versus substance information</b>	No information available.
<b>Other information</b>	Not available.

## SECTION 12: Ecological information

**12.1. Toxicity** The product is not classified as environmentally hazardous.

Product	Species	Test Results
Chromium Nickel Aluminum Targets		
<b>Aquatic</b>		
<i>Acute</i>		
Fish	LC50	0,3444 mg/l, 96 hours estimated

Components	Species	Test Results
NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0)		
<b>Aquatic</b>		
<i>Acute</i>		
Fish	LC50	0,06 mg/l, 4 days
	Rainbow trout,donaldson trout (Oncorhynchus mykiss)	

**12.2. Persistence and degradability** No data is available on the degradability of any ingredients in the mixture.

**12.3. Bioaccumulative potential** No data available.

**Partition coefficient n-octanol/water (log Kow)** Not applicable.

**Bioconcentration factor (BCF)** Not available.

**12.4. Mobility in soil** No data available.

**12.5. Results of PBT and vPvB assessment** Not a PBT or vPvB substance or mixture.

**12.6. Other adverse effects** No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

### 12.7. Additional information

#### Estonia Dangerous substances in soil Data

Chromium (CAS 7440-47-3)	Chromium (Cr) 100 mg/kg Chromium (Cr) 300 mg/kg Chromium (Cr) 800 mg/kg
NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0)	Nickel (Ni) 150 mg/kg  Nickel (Ni) 50 mg/kg Nickel (Ni) 500 mg/kg

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

<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>EU waste code</b>	The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.
<b>Disposal methods/information</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>Special precautions</b>	Dispose in accordance with all applicable regulations.

## SECTION 14: Transport information

### ADR

**14.1. UN number** UN3178

**14.2. UN proper shipping name** FLAMMABLE SOLID, INORGANIC, N.O.S.

**14.3. Transport hazard class(es)**

**Class** 4.1

**Subsidiary risk** -

**Label(s)** 4.1

**Hazard No. (ADR)** 40

**Tunnel restriction code** E

**14.4. Packing group** III

**14.5. Environmental hazards** No.

**14.6. Special precautions for user** Not available.

**RID**

**14.1. UN number** UN3178

**14.2. UN proper shipping name** FLAMMABLE SOLID, INORGANIC, N.O.S.

**14.3. Transport hazard class(es)**

**Class** 4.1

**Subsidiary risk** -

**Label(s)** 4.1

**14.4. Packing group** III

**14.5. Environmental hazards** No.

**14.6. Special precautions for user** Read safety instructions, SDS and emergency procedures before handling.

**ADN**

**14.1. UN number** UN3178

**14.2. UN proper shipping name** FLAMMABLE SOLID, INORGANIC, N.O.S.

**14.3. Transport hazard class(es)**

**Class** 4.1

**Subsidiary risk** -

**Label(s)** 4.1

**14.4. Packing group** III

**14.5. Environmental hazards** No.

**14.6. Special precautions for user** Read safety instructions, SDS and emergency procedures before handling.

**IATA**

**14.1. UN number** UN3178

**14.2. UN proper shipping name** Flammable solid, inorganic, n.o.s.

**14.3. Transport hazard class(es)**

**Class** 4.1

**Subsidiary risk** -

**14.4. Packing group** III

**14.5. Environmental hazards** No.

**ERG Code** 3L

**14.6. Special precautions for user** Not available.

**Other information**

**Passenger and cargo aircraft** Allowed with restrictions.

**Cargo aircraft only** Allowed with restrictions.

**IMDG**

**14.1. UN number** UN3178

**14.2. UN proper shipping name** FLAMMABLE SOLID, INORGANIC, N.O.S.

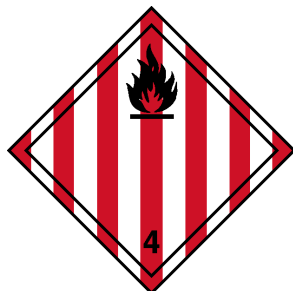
**14.3. Transport hazard class(es)**

**Class** 4.1

**Subsidiary risk** -

<b>14.4. Packing group</b>	III
<b>14.5. Environmental hazards</b>	
<b>Marine pollutant</b>	No.
<b>EmS</b>	F-A, S-G
<b>14.6. Special precautions for user</b>	Not available.

**ADN; ADR; IATA; IMDG; RID**



## SECTION 15: Regulatory information

### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

#### EU regulations

**Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended**  
Not listed.

**Regulation (EU) 2019/1021 On persistent organic pollutants (recast), as amended**  
Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended**  
Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended**  
Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended**  
Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended**  
Not listed.

**Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended**

Aluminium (CAS 7429-90-5)

Chromium (CAS 7440-47-3)

NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0)

**Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA**  
Not listed.

#### Authorisations

**Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended**  
Not listed.

#### Restrictions on use

**Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended**

NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0)

**Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended.**

Not listed.

#### Other EU regulations

**Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended**

Aluminium (CAS 7429-90-5)

#### Other regulations

The product is classified and labelled in accordance with Regulation (EC) 1272/2008 (CLP Regulation) as amended.

**National regulations**

According to Directive 92/85/EEC as amended, pregnant women should not work with the product, if there is the least risk of exposure.

Young people under 18 years old are not allowed to work with this product according to EU Directive 94/33/EC on the protection of young people at work, as amended. Follow national regulation for work with chemical agents in accordance with Directive 98/24/EC, as amended.

**15.2. Chemical safety assessment**

No Chemical Safety Assessment has been carried out.

**SECTION 16: Other information****List of abbreviations**

Not available.

**References**

Not available.

**Information on evaluation method leading to the classification of mixture**

The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available.

**Revision information**

None.

**Training information**

Follow training instructions when handling this material.

**Disclaimer**

This document has been prepared using data from sources considered to be technically reliable and the information is believed to be correct. Materion makes no warranties, expressed or implied, as to the accuracy of the information contained herein. Materion cannot anticipate all conditions under which this information and its products may be used and the actual conditions of use are beyond its control. The user is responsible to evaluate all available information when using this product for any particular use and to comply with all Federal, State, Provincial and Local laws, statutes and regulations.

To avoid any misunderstandings or incorrect assumptions by the receiver of the safety information, it should be made clear that the supplied information is not in the form of a Safety Data Sheet (SDS), but is actually a voluntary Product Information Sheet closely following the guidelines of the Safety Data Sheet – COMMISSION REGULATION (EU) No 453/2010 of 20 May 2010 (REACH/SDS).