



# SAFETY DATA 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** Iron Based Products (FLA)  
**Synonyms** None.  
**Document number** W11  
**Issue date** 05-May-2015  
**Version number** 02  
**Revision date** 07-July-2015  
**Supersedes date** 05-May-2015

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

**Identified uses** Not available.  
**Uses advised against** None known.

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

#### Supplier

**Company name** Materion Advanced Materials Technologies and Services Inc.  
**Address** 2978 Main Street  
Buffalo, NY 14214  
United States  
**Division** Buffalo  
**Telephone** 716-837-1000  
**e-mail** Not available.  
**Contact person** Not available.

**1.4. Emergency telephone number** 800-424-9300 Chemtrec

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

**Classification according to Directive 67/548/EEC or 1999/45/EC as amended**

**Classification** R42/43, N;R50/53

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

#### Health hazards

Respiratory sensitisation	Category 1	H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin sensitisation	Category 1	H317 - May cause an allergic skin reaction.
Carcinogenicity	Category 2	H351 - Suspected of causing cancer.

#### Environmental hazards

Hazardous to the aquatic environment, acute aquatic hazard	Category 1	H400 - Very toxic to aquatic life.
Hazardous to the aquatic environment, long-term aquatic hazard	Category 3	H412 - Harmful to aquatic life with long lasting effects.

### Hazard summary

**Physical hazards** Not classified for physical hazards.  
**Health hazards** May cause sensitisation by inhalation and skin contact.  
**Environmental hazards** Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.  
**Specific hazards** Not available.

### 2.2. Label elements

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

<b>Contains:</b>	Cobalt, Gold, Iron, Nickel, Tin
<b>Hazard pictograms</b>	None.
<b>Signal word</b>	Danger
<b>Hazard statements</b>	
H317	May cause an allergic skin reaction.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H351	Suspected of causing cancer.
H400	Very toxic to aquatic life.
H412	Harmful to aquatic life with long lasting effects.

**Precautionary statements****Prevention**

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P284	Wear respiratory protection.

**Response**

P302 + P352	IF ON SKIN: Wash with plenty of water.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308 + P313	IF exposed or concerned: Get medical advice/attention.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
P342 + P311	If experiencing respiratory symptoms: Call a POISON CENTER/doctor.
P362 + P364	Take off contaminated clothing and wash it before reuse.
P391	Collect spillage.

**Storage**

P405	Store locked up.
------	------------------

**Disposal**

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

**Supplemental label information**

68,45 % of the mixture consists of component(s) of unknown acute hazards to the aquatic environment. 68,45 % of the mixture consists of component(s) of unknown long-term hazards to the aquatic environment.

**2.3. Other hazards**

None known.

**SECTION 3: Composition/information on ingredients****3.2. Mixtures****General information**

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	INDEX No.	Notes
Iron	50 - < 60	7439-89-6 231-096-4	-	-	
<b>Classification:</b>	<b>DSD:</b> -				
	<b>CLP:</b> -				
Nickel	20 - < 45	7440-02-0 231-111-4	-	-	M=10
<b>Classification:</b>	<b>DSD:</b> N;R50/53				
	<b>CLP:</b> Carc. 2;H351, Aquatic Acute 1;H400, Aquatic Chronic 3;H412				
Cobalt	2 - < 17	7440-48-4 231-158-0	-	027-001-00-9	
<b>Classification:</b>	<b>DSD:</b> R42/43				
	<b>CLP:</b> Skin Sens. 1;H317, Resp. Sens. 1;H334, STOT SE 3;H335, Carc. 2;H351				

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	INDEX No.	Notes
Gold	1 - < 5	7440-57-5 231-165-9	-	-	
<b>Classification:</b>	<b>DSD:</b> -				
	<b>CLP:</b> -				
Tin	1 - < 5	7440-31-5 231-141-8	-	-	#
<b>Classification:</b>	<b>DSD:</b> -				
	<b>CLP:</b> -				

## SECTION 4: First aid measures

**General information** Not available.

### 4.1. Description of first aid measures

**Inhalation** Not available.

**Skin contact** Not available.

**Eye contact** Not available.

**Ingestion** Not available.

**4.2. Most important symptoms and effects, both acute and delayed** Not available.

**4.3. Indication of any immediate medical attention and special treatment needed** Not available.

## SECTION 5: Firefighting measures

**General fire hazards** Not available.

### 5.1. Extinguishing media

**Suitable extinguishing media** Not available.

**Unsuitable extinguishing media** Not available.

**5.2. Special hazards arising from the substance or mixture** Not available.

### 5.3. Advice for firefighters

**Special protective equipment for firefighters** Not available.

## SECTION 6: Accidental release measures

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

**For non-emergency personnel** Not available.

**For emergency responders** Not available.

**6.2. Environmental precautions** Not available.

**6.3. Methods and material for containment and cleaning up** Not available.

**6.4. Reference to other sections** Not available.

## SECTION 7: Handling and storage

**7.1. Precautions for safe handling** Not available.

**7.2. Conditions for safe storage, including any incompatibilities** Not available.

**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
Tin (CAS 7440-31-5)	MAK	2 mg/m <sup>3</sup>	Inhalable fraction.
	STEL	4 mg/m <sup>3</sup>	Inhalable fraction.

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

Components	Type	Value	Form
Cobalt (CAS 7440-48-4)	STEL	0,4 mg/m <sup>3</sup>	Inhalable fraction.
	TWA	0,1 mg/m <sup>3</sup>	Inhalable fraction.
Nickel (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
Cobalt (CAS 7440-48-4)	TWA	0,02 mg/m <sup>3</sup>	Dust and fume.
Nickel (CAS 7440-02-0)	TWA	1 mg/m <sup>3</sup>	
Tin (CAS 7440-31-5)	TWA	2 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
Cobalt (CAS 7440-48-4)	TWA	0,1 mg/m <sup>3</sup>	
Iron (CAS 7439-89-6)	TWA	6 mg/m <sup>3</sup>	Inhalable fraction.
Nickel (CAS 7440-02-0)	TWA	0,05 mg/m <sup>3</sup>	
Tin (CAS 7440-31-5)	TWA	0,1 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
Cobalt (CAS 7440-48-4)	MAC	0,1 mg/m <sup>3</sup>	
Nickel (CAS 7440-02-0)	MAC	0,5 mg/m <sup>3</sup>	
Tin (CAS 7440-31-5)	MAC	2 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	Form
Cobalt (CAS 7440-48-4)	TWA	0,1 mg/m <sup>3</sup>	Dust and fume.
Nickel (CAS 7440-02-0)	TWA	1 mg/m <sup>3</sup>	

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

Components	Type	Value	Form
Cobalt (CAS 7440-48-4)	Ceiling	0,1 mg/m <sup>3</sup>	
	TWA	0,05 mg/m <sup>3</sup>	
Iron (CAS 7439-89-6)	TWA	10 mg/m <sup>3</sup>	
Nickel (CAS 7440-02-0)	Ceiling	1 mg/m <sup>3</sup>	
	TWA	0,5 mg/m <sup>3</sup>	
Tin (CAS 7440-31-5)	Ceiling	4 mg/m <sup>3</sup>	
	TWA	2 mg/m <sup>3</sup>	

##### **Denmark. Exposure Limit Values**

Components	Type	Value	Form
Cobalt (CAS 7440-48-4)	TLV	0,01 mg/m <sup>3</sup>	Dust and fume.
Nickel (CAS 7440-02-0)	TLV	0,05 mg/m <sup>3</sup>	Dust.

##### **Estonia. OELs. Occupational Exposure Limits of Hazardous Substances. (Annex of Regulation No. 293 of 18 September 2001)**

Components	Type	Value	Form
Cobalt (CAS 7440-48-4)	TWA	0,05 mg/m <sup>3</sup>	
Nickel (CAS 7440-02-0)	TWA	0,5 mg/m <sup>3</sup>	

**Finland. Workplace Exposure Limits**

Components	Type	Value	Form
Cobalt (CAS 7440-48-4)	TWA	0,02 mg/m <sup>3</sup>	
Nickel (CAS 7440-02-0)	TWA	0,01 mg/m <sup>3</sup>	Respirable.
Tin (CAS 7440-31-5)	TWA	2 mg/m <sup>3</sup>	

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

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

**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
Tin (CAS 7440-31-5)	TWA	0,02 mg/m <sup>3</sup>	Vapor and aerosol, inhalable fraction.
		0,004 ppm	Vapor and aerosol, inhalable fraction.

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

Components	Type	Value	Form
Cobalt (CAS 7440-48-4)	TWA	0,1 mg/m <sup>3</sup>	Dust and fume.
Nickel (CAS 7440-02-0)	TWA	1 mg/m <sup>3</sup>	
Tin (CAS 7440-31-5)	TWA	2 mg/m <sup>3</sup>	

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

Components	Type	Value	
Cobalt (CAS 7440-48-4)	STEL	0,4 mg/m <sup>3</sup>	
	TWA	0,1 mg/m <sup>3</sup>	
Nickel (CAS 7440-02-0)	Ceiling	0,1 mg/m <sup>3</sup>	
Tin (CAS 7440-31-5)	STEL	8 mg/m <sup>3</sup>	
	TWA	2 mg/m <sup>3</sup>	

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

Components	Type	Value	Form
Cobalt (CAS 7440-48-4)	TWA	0,02 mg/m <sup>3</sup>	Dust and fume.
Nickel (CAS 7440-02-0)	TWA	0,05 mg/m <sup>3</sup>	Dust.

**Ireland. Occupational Exposure Limits**

Components	Type	Value	
Cobalt (CAS 7440-48-4)	TWA	0,1 mg/m <sup>3</sup>	
Nickel (CAS 7440-02-0)	TWA	0,5 mg/m <sup>3</sup>	
Tin (CAS 7440-31-5)	TWA	2 mg/m <sup>3</sup>	

**Italy. Occupational Exposure Limits**

Components	Type	Value	Form
Cobalt (CAS 7440-48-4)	TWA	0,02 mg/m <sup>3</sup>	
Nickel (CAS 7440-02-0)	TWA	1,5 mg/m <sup>3</sup>	Inhalable fraction.
Tin (CAS 7440-31-5)	TWA	2 mg/m <sup>3</sup>	

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

Components	Type	Value	
Cobalt (CAS 7440-48-4)	TWA	0,5 mg/m <sup>3</sup>	
Nickel (CAS 7440-02-0)	TWA	0,05 mg/m <sup>3</sup>	

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

Components	Type	Value	
Cobalt (CAS 7440-48-4)	TWA	0,05 mg/m <sup>3</sup>	
Nickel (CAS 7440-02-0)	TWA	0,5 mg/m <sup>3</sup>	
Tin (CAS 7440-31-5)	TWA	2 mg/m <sup>3</sup>	

**Netherlands. OELs (binding)**

Components	Type	Value	Form
Cobalt (CAS 7440-48-4)	TWA	0,02 mg/m <sup>3</sup>	Dust and fume.

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

Components	Type	Value	Form
Cobalt (CAS 7440-48-4)	TLV	0,02 mg/m <sup>3</sup>	Fume.

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

Components	Type	Value	Form
Nickel (CAS 7440-02-0)	TLV	0,05 mg/m <sup>3</sup>	
Tin (CAS 7440-31-5)	TLV	2 mg/m <sup>3</sup>	

**Poland. MACs. Minister of Labour and Social Policy Regarding Maximum Allowable Concentrations and Intensities in Working Environment**

Components	Type	Value	Form
Cobalt (CAS 7440-48-4)	TWA	0,02 mg/m <sup>3</sup>	
Nickel (CAS 7440-02-0)	TWA	0,25 mg/m <sup>3</sup>	
Tin (CAS 7440-31-5)	TWA	2 mg/m <sup>3</sup>	Inhalable fraction.

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

Components	Type	Value	Form
Tin (CAS 7440-31-5)	TWA	2 mg/m <sup>3</sup>	

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

Components	Type	Value	Form
Cobalt (CAS 7440-48-4)	TWA	0,02 mg/m <sup>3</sup>	
Nickel (CAS 7440-02-0)	TWA	1,5 mg/m <sup>3</sup>	Inhalable fraction.
Tin (CAS 7440-31-5)	TWA	2 mg/m <sup>3</sup>	

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

Components	Type	Value	Form
Cobalt (CAS 7440-48-4)	STEL	0,1 mg/m <sup>3</sup>	
	TWA	0,05 mg/m <sup>3</sup>	
Nickel (CAS 7440-02-0)	STEL	0,5 mg/m <sup>3</sup>	
	TWA	0,1 mg/m <sup>3</sup>	
Tin (CAS 7440-31-5)	TWA	2 mg/m <sup>3</sup>	

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

Components	Type	Value	Form
Cobalt (CAS 7440-48-4)	TWA	0,05 mg/m <sup>3</sup>	
Iron (CAS 7439-89-6)	TWA	6 mg/m <sup>3</sup>	
Tin (CAS 7440-31-5)	STEL	4 mg/m <sup>3</sup>	
	TWA	2 mg/m <sup>3</sup>	

**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
Cobalt (CAS 7440-48-4)	TWA	0,1 mg/m <sup>3</sup>	Inhalable fraction.
Nickel (CAS 7440-02-0)	TWA	0,5 mg/m <sup>3</sup>	Inhalable fraction.
Tin (CAS 7440-31-5)	TWA	2 mg/m <sup>3</sup>	

**Spain. Occupational Exposure Limits**

Components	Type	Value	Form
Cobalt (CAS 7440-48-4)	TWA	0,02 mg/m <sup>3</sup>	
Nickel (CAS 7440-02-0)	TWA	1 mg/m <sup>3</sup>	
Tin (CAS 7440-31-5)	TWA	2 mg/m <sup>3</sup>	

**Sweden. Occupational Exposure Limit Values**

Components	Type	Value	Form
Cobalt (CAS 7440-48-4)	TWA	0,02 mg/m <sup>3</sup>	Inhalable dust.
Nickel (CAS 7440-02-0)	TWA	0,5 mg/m <sup>3</sup>	Total dust.
Tin (CAS 7440-31-5)	TWA	2 mg/m <sup>3</sup>	Inhalable dust.

**Switzerland. SUVA Grenzwerte am Arbeitsplatz**

Components	Type	Value	Form
Cobalt (CAS 7440-48-4)	TWA	0,05 mg/m <sup>3</sup>	Dust/aerosol, inhalable.
Nickel (CAS 7440-02-0)	TWA	0,5 mg/m <sup>3</sup>	Inhalable dust.

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

Components	Type	Value	Form
Cobalt (CAS 7440-48-4)	TWA	0,1 mg/m <sup>3</sup>	
Nickel (CAS 7440-02-0)	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 Components Type Value**

Tin (CAS 7440-31-5) TWA 2 mg/m<sup>3</sup>

**Biological limit values**

**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 (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 (CAS 7440-02-0) 0,1 umol/l Nickel Urine \*

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

**France. Biological indicators of exposure (IBE) (National Institute for Research and Security (INRS, ND 2065)**

Components	Value	Determinant	Specimen	Sampling time
------------	-------	-------------	----------	---------------

Cobalt (CAS 7440-48-4) 15 µg/l Cobalt Urine \*  
1 µg/l Cobalt Blood \*

\* - 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
------------	-------	-------------	----------	---------------

Cobalt (CAS 7440-48-4) 0,03 mg/g Cobalt Creatinine in urine \*  
0,058 µmol/mmol Cobalt Creatinine in urine \*  
Nickel (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
------------	-------	-------------	----------	---------------

Cobalt (CAS 7440-48-4) 20,03 µg/g Cobalt Creatinine in urine \*  
30 µg/l Cobalt 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
------------	-------	-------------	----------	---------------

Cobalt (CAS 7440-48-4) 15 µg/l Cobalto Urine \*  
1 µg/l Cobalto Blood \*

\* - 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
------------	-------	-------------	----------	---------------

Cobalt (CAS 7440-48-4) 30 µg/l Cobalt Urine \*  
Nickel (CAS 7440-02-0) 45 µg/l Nickel Urine \*

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

**Recommended monitoring procedures** Not available.

**Derived no-effect level (DNEL)** Not available.

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

**8.2. Exposure controls**

<b>Appropriate engineering controls</b>	Not available.
<b>Individual protection measures, such as personal protective equipment</b>	
<b>Eye/face protection</b>	Not available.
<b>Skin protection</b>	
- <b>Hand protection</b>	Not available.
- <b>Other</b>	Not available.
<b>Respiratory protection</b>	Not available.
<b>Thermal hazards</b>	Not available.
<b>Hygiene measures</b>	Not available.
<b>Environmental exposure controls</b>	Not available.

## SECTION 9: Physical and chemical properties

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

#### Appearance

<b>Physical state</b>	Solid.
<b>Form</b>	Not available.
<b>Colour</b>	Not available.
<b>Odour</b>	Not applicable.
<b>Odour threshold</b>	Not available.
<b>pH</b>	Not available.
<b>Melting point/freezing point</b>	231,9 °C (449,42 °F) estimated
<b>Initial boiling point and boiling range</b>	2507 °C (4544,6 °F) estimated
<b>Flash point</b>	Not available.
<b>Evaporation rate</b>	Not available.
<b>Flammability (solid, gas)</b>	Not applicable.
<b>Upper/lower flammability or explosive limits</b>	
<b>Flammability limit - lower (%)</b>	Not available.
<b>Flammability limit - upper (%)</b>	Not available.
<b>Vapour pressure</b>	0,00001 hPa estimated
<b>Vapour density</b>	Not available.
<b>Relative density</b>	Not available.
<b>Solubility(ies)</b>	
<b>Solubility (water)</b>	Not available.
<b>Solubility (other)</b>	Not available.
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	630 °C (1166 °F) estimated
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	Not available.
<b>Explosive properties</b>	Not available.
<b>Oxidizing properties</b>	Not available.
<b>9.2. Other information</b>	
<b>Density</b>	9,59 g/cm3 estimated
<b>Specific gravity</b>	9,59 estimated

## SECTION 10: Stability and reactivity

<b>10.1. Reactivity</b>	Not available.
<b>10.2. Chemical stability</b>	Not available.
<b>10.3. Possibility of hazardous reactions</b>	Not available.
<b>10.4. Conditions to avoid</b>	Not available.



**10.5. Incompatible materials** Not available.

**10.6. Hazardous decomposition products** Not available.

## SECTION 11: Toxicological information

**General information** Not available.

### Information on likely routes of exposure

**Inhalation** Not available.

**Skin contact** Not available.

**Eye contact** Not available.

**Ingestion** Not available.

**Symptoms** Not available.

### 11.1. Information on toxicological effects

**Acute toxicity** No data available.

**Skin corrosion/irritation** Not available.

**Serious eye damage/eye irritation** Not available.

**Respiratory sensitisation** Not available.

**Skin sensitisation** Not available.

**Germ cell mutagenicity** Not available.

### Carcinogenicity

#### IARC Monographs. Overall Evaluation of Carcinogenicity

Cobalt (CAS 7440-48-4)

2B Possibly carcinogenic to humans.

Nickel (CAS 7440-02-0)

2B Possibly carcinogenic to humans.

**Reproductive toxicity** Not available.

**Specific target organ toxicity - single exposure** Not available.

**Specific target organ toxicity - repeated exposure** Not available.

**Aspiration hazard** Not available.

**Mixture versus substance information** Not available.

**Other information** Not available.

## SECTION 12: Ecological information

### 12.1. Toxicity

Components		Species	Test results
Nickel (CAS 7440-02-0)			
<b>Aquatic</b>			
Crustacea	EC50	Water flea (Daphnia magna)	1 mg/l, 48 hours
Fish	LC50	Fathead minnow (Pimephales promelas)	2,923 mg/l, 96 hours

**12.2. Persistence and degradability** Not available.

**12.3. Bioaccumulative potential** Not available.

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

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

**12.4. Mobility in soil** Not available.

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

**12.6. Other adverse effects** Not available.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

<b>Residual waste</b>	Not available.
<b>Contaminated packaging</b>	Not available.
<b>EU waste code</b>	Not available.

## SECTION 14: Transport information

### ADR

<b>14.1. UN number</b>	UN3077
<b>14.2. UN proper shipping name</b>	Environmentally hazardous substance, solid, n.o.s.
<b>14.3. Transport hazard class(es)</b>	
<b>Class</b>	9
<b>Subsidiary risk</b>	-
<b>Label(s)</b>	9
<b>Hazard No. (ADR)</b>	90
<b>Tunnel restriction code</b>	E
<b>14.4. Packing group</b>	III
<b>14.5. Environmental hazards</b>	Yes
<b>14.6. Special precautions for user</b>	Not available.

### RID

<b>14.1. UN number</b>	UN3077
<b>14.2. UN proper shipping name</b>	Environmentally hazardous substance, solid, n.o.s.
<b>14.3. Transport hazard class(es)</b>	
<b>Class</b>	9
<b>Subsidiary risk</b>	-
<b>Label(s)</b>	9
<b>14.4. Packing group</b>	III
<b>14.5. Environmental hazards</b>	Yes
<b>14.6. Special precautions for user</b>	Not available.

### ADN

<b>14.1. UN number</b>	UN3077
<b>14.2. UN proper shipping name</b>	Environmentally Hazardous Solid, N.o.s.
<b>14.3. Transport hazard class(es)</b>	
<b>Class</b>	9
<b>Subsidiary risk</b>	-
<b>Label(s)</b>	9
<b>14.4. Packing group</b>	III
<b>14.5. Environmental hazards</b>	Yes
<b>14.6. Special precautions for user</b>	Not available.

### IATA

<b>14.1. UN number</b>	UN3077
<b>14.2. UN proper shipping name</b>	Environmentally hazardous substance, solid, n.o.s.
<b>14.3. Transport hazard class(es)</b>	
<b>Class</b>	9
<b>Subsidiary risk</b>	-
<b>14.4. Packing group</b>	III
<b>14.5. Environmental hazards</b>	Yes
<b>ERG Code</b>	9L
<b>14.6. Special precautions for user</b>	Not available.
<b>Other information</b>	
<b>Passenger and cargo aircraft</b>	Allowed.
<b>Cargo aircraft only</b>	Allowed.

## IMDG

<b>14.1. UN number</b>	UN3077
<b>14.2. UN proper shipping name</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
<b>14.3. Transport hazard class(es)</b>	
Class	9
Subsidiary risk	-
<b>14.4. Packing group</b>	III
<b>14.5. Environmental hazards</b>	
Marine pollutant	Yes
<b>EmS</b>	F-A, S-F
<b>14.6. Special precautions for user</b>	Not available.

ADN; ADR; IATA; IMDG; RID



Marine pollutant



## 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, as amended**

Not listed.

**Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex II, as amended**

Not listed.

**Regulation (EC) No. 850/2004 on persistent organic pollutants, Annex I**

Not listed.

**Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 1**

Not listed.

**Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 2**

Not listed.

**Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 3**

Not listed.

**Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex V**

Not listed.

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

Nickel (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.

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

Not listed.

**Restrictions on use**

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

Nickel (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.

**Directive 92/85/EEC: on the safety and health of pregnant workers and workers who have recently given birth or are breastfeeding, as amended**

Not listed.

**Other EU regulations**

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

Not listed.

**Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work, as amended**

Cobalt (CAS 7440-48-4)

**Directive 94/33/EC on the protection of young people at work, as amended**

Cobalt (CAS 7440-48-4)

**National regulations** Not available.

**15.2. Chemical safety assessment** Not available.

**SECTION 16: Other information**

**List of abbreviations** Not available.

**References** Not available.

**Information on evaluation method leading to the classification of mixture** Not available.

**Full text of any statements or R-phrases and H-statements under Sections 2 to 15**

R42/43 May cause sensitisation by inhalation and skin contact.  
R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.  
H317 May cause an allergic skin reaction.  
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
H335 May cause respiratory irritation.  
H351 Suspected of causing cancer.  
H400 Very toxic to aquatic life.  
H412 Harmful to aquatic life with long lasting effects.

**Revision information** None.

**Training information** Not available.