

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1. Product identifier**

Product form : Mixture  
Product Name : RECOMA STAB 2:17

**1.2. Relevant identified uses of the substance or mixture and uses advised against****1.2.1. Relevant identified uses**

Industrial/Professional use spec : Permanent Magnets

**1.2.2. Uses advised against**

No additional information available

**1.3. Details of the supplier of the safety data sheet****Manufacturer**

Arnold Magnetic Technologies AG  
Hubelacherstrasse 15  
CH-5242 Lupfig, Switzerland  
Phone: (+41) (0) 56 464 21 00  
[www.arnoldmagnetics.com](http://www.arnoldmagnetics.com)

**1.4. Emergency telephone number**

Emergency number : (+41) (0) 56 464 21 00

**SECTION 2: Hazards identification****2.1. Classification of the substance or mixture****Classification according to Regulation (EC) No. 1272/2008 [CLP]**

Acute Tox. 4 (Oral)	H302
Acute Tox. 4 (Dermal)	H312
Acute Tox. 4 (Inhalation:dust,mist)	H332
Skin Irrit. 2	H315
Eye Irrit. 2	H319
STOT SE 3	H335

Full text of hazard classes and H-statements : see section 16

**Adverse physicochemical, human health and environmental effects**

No additional information available

**2.2. Label elements****Labelling according to Regulation (EC) No. 1272/2008 [CLP]**

Hazard pictograms (CLP) :



GHS07

Signal word (CLP) : Warning

Hazard statements (CLP) : H302+H312+H332 - Harmful if swallowed, in contact with skin or if inhaled  
H315 - Causes skin irritation  
H319 - Causes serious eye irritation  
H335 - May cause respiratory irritation

Precautionary statements (CLP) : P261 - Avoid breathing vapors, mist, or spray.  
P264 - Wash hands, forearms, and other exposed areas thoroughly after handling.  
P270 - Do not eat, drink or smoke when using this product.  
P271 - Use only outdoors or in a well-ventilated area.  
P280 - Wear protective gloves, protective clothing, and eye protection.  
P301+P312 - IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell.  
P302+P352 - IF ON SKIN: Wash with plenty of water.  
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes.  
Remove contact lenses, if present and easy to do. Continue rinsing.  
P312 - Call a POISON CENTER or doctor if you feel unwell.

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P321 - Specific treatment (see section 4 on this SDS).  
P330 - Rinse mouth.  
P332+P313 - If skin irritation occurs: Get medical advice/attention.  
P337+P313 - If eye irritation persists: Get medical advice/attention.  
P362+P364 - Take off contaminated clothing and wash it before reuse.  
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.  
P405 - Store locked up.  
P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations.

EUH-statements : EUH208 - Contains Nickel(7440-02-0). May produce an allergic reaction

### 2.3. Other hazards

Molten material may produce fumes that are toxic, or irritating, and may cause metal fume fever. When machined or physically altered material may produce dusts or ribbons that may be irritating or harmful. Exposure may aggravate pre-existing eye, skin, or respiratory conditions. Chips and broken magnets can be very sharp. Pacemaker function may be affected by magnets. These magnets are powerful and can accelerate at high speeds toward each other. When these magnets come together quickly, they can shatter and break sending particles at speed and can also pinch strongly if allowed to come together against the skin.

## SECTION 3: Composition/information on ingredients

### 3.1. Substance

Not applicable

### 3.2. Mixture

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Cobalt, compound with samarium (5:1)	(CAS No) 12017-68-4 (EC no) 234-625-7	<= 81	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Acute Tox. 4 (Inhalation:dust,mist), H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335
Iron	(CAS No) 7439-89-6 (EC no) 231-096-4	15 - 22	Not classified
Gadolinium	(CAS No) 7440-54-2 (EC no) 231-162-2	<= 17	Not classified
Zirconium	(CAS No) 7440-67-7 (EC no) 231-176-9 (EC index no) 040-001-00-3	2 - 5	Not classified
Copper	(CAS No) 7440-50-8 (EC no) 231-159-6	2 - 5	Not classified
Nickel	(CAS No) 7440-02-0 (EC no) 231-111-4 (EC index no) 028-002-00-7	<= 0,2	Skin Sens. 1, H317 Carc. 2, H351 STOT RE 1, H372 Aquatic Chronic 3, H412

Full text of H-statements: see section 16

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice.

First-aid measures after inhalation : When symptoms occur: go into open air and ventilate suspected area. Remove to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention.

First-aid measures after skin contact : Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Get immediate medical advice/attention.

First-aid measures after eye contact : Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.

First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain medical attention.

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#### 4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries	: Under normal conditions of use not expected to present a significant hazard. During processing or physical alteration, flakes or powder cause irritation of the respiratory tract, eyes, skin, and are harmful. Molten material may release toxic, and irritating fumes.
Symptoms/injuries after inhalation	: For particulates and dust: Irritation of the respiratory tract and the other mucous membranes. Inhalation is likely to cause adverse health effects including but not limited to: irritation, difficulty breathing, and unconsciousness.
Symptoms/injuries after skin contact	: For particulates and dust: Redness, pain, swelling, itching, burning, dryness, and dermatitis. This material is harmful through skin contact, and can cause adverse health effects or death in significant amounts. This material may be absorbed through the skin and eyes. May cause an allergic skin reaction.
Symptoms/injuries after eye contact	: For particulates and dust: Contact causes severe irritation with redness and swelling of the conjunctiva.
Symptoms/injuries after ingestion	: For particulates and dust: This material is harmful orally and can cause adverse health effects or death in significant amounts.
Chronic symptoms	: For particulates and dust: Suspected of causing cancer.

#### 4.3. Indication of any immediate medical attention and special treatment needed

If exposed or concerned, get medical advice and attention. If medical advice is needed, have product SDS at hand.

### SECTION 5: Firefighting measures

#### 5.1. Extinguishing media

Suitable extinguishing media	: Dry sand; Class D Extinguishing Agent (for metal powder fires).
Unsuitable extinguishing media	: Do not use water.

#### 5.2. Special hazards arising from the substance or mixture

Fire hazard	: Product is not flammable. Small chips, turnings, dust and fines from processing may be readily ignitable. Under fire conditions, hazardous fumes will be present.
Explosion hazard	: Metallic dusts may ignite or explode.
Reactivity	: Hazardous reactions will not occur under normal conditions.
Hazardous decomposition products in case of fire	: Metal oxides.

#### 5.3. Advice for firefighters

Precautionary measures fire	: Exercise caution when fighting any chemical fire.
Firefighting instructions	: Use carbon dioxide extinguisher for cooling exposed containers. Remove containers from fire area if this can be done without risk. Beware of reignition.
Protection during firefighting	: Firefighters should wear full protective gear. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.

### SECTION 6: Accidental release measures

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

General measures	: Avoid contact with skin, eyes and clothing.
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##### 6.1.1. For non-emergency personnel

Evacuate unnecessary personnel.

##### 6.1.2. For emergency responders

For particulates and dust: Eliminate ignition sources. Keep wet with water. Do not allow to dry.

#### 6.2. Environmental precautions

Prevent entry to sewers and public waters.

#### 6.3. Methods and material for containment and cleaning up

Methods for cleaning up	: Clean up spills immediately and dispose of waste safely. Use only non-sparking tools. Transfer spilled material to a suitable container for disposal.
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#### 6.4. Reference to other sections

See Section 8, Exposure Controls and Personal Protection. See Section 13, Disposal Considerations.

### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

Precautions for safe handling	: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.
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Hygiene measures : Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work.

### 7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in a dry, cool and well-ventilated place.

Incompatible products : None known.

### 7.3. Specific end use(s)

Permanent Magnets

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

Nickel (7440-02-0)		
Austria	TEL TRK (mg/m <sup>3</sup> )	0,5 mg/m <sup>3</sup> (dust, inhalable fraction)
Austria	OEL chemical category (AT)	Group A1 Carcinogen dust/aerosol, Respiratory sensitizer dust, Skin sensitizer
Belgium	Limit value (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup>
Bulgaria	OEL TWA (mg/m <sup>3</sup> )	0,05 mg/m <sup>3</sup>
Bulgaria	Bulgaria - BEI	45 µg/l (Medium: urine - Time: after several shifts - Parameter: Nickel)
Croatia	GVI (granična vrijednost izloženosti) (mg/m <sup>3</sup> )	0,5 mg/m <sup>3</sup>
Croatia	OEL chemical category (HR)	Carcinogen category 3
France	VME (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup> 1 mg/m <sup>3</sup> (metal gratings)
France	OEL chemical category (FR)	Carcinogen category 2
Greece	OEL TWA (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup>
USA ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	1,5 mg/m <sup>3</sup> (inhalable fraction)
Latvia	OEL TWA (mg/m <sup>3</sup> )	0,05 mg/m <sup>3</sup>
Spain	VLA-ED (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup> (manufacturing, commercialization and use restrictions according to REACH)
Spain	OEL chemical category (ES)	C1A, Sensitizer
Switzerland	VME (mg/m <sup>3</sup> )	0,5 mg/m <sup>3</sup> (inhalable dust)
Switzerland	OEL chemical category (CH)	Category C3 carcinogen, Sensitizer
Switzerland	Switzerland - BEI	45 µg/l (Medium: urine - Time: end of shift, and after several shifts (for long-term exposures) - Parameter: Nickel (N))
United Kingdom	WEL TWA (mg/m <sup>3</sup> )	0,5 mg/m <sup>3</sup>
United Kingdom	WEL STEL (mg/m <sup>3</sup> )	1,5 mg/m <sup>3</sup> (calculated)
United Kingdom	WEL chemical category	Potential for cutaneous absorption
Czech Republic	Expoziční limity (PEL) (mg/m <sup>3</sup> )	0,5 mg/m <sup>3</sup>
Czech Republic	OEL chemical category (CZ)	Sensitizer
Czech Republic	Czech Republic - BEI	0,077 µmol/mmol Creatinine (Medium: urine - Time: discretionary - Parameter: Nickel) 0,04 mg/g Kreatinin (Medium: urine - Time: discretionary - Parameter: Nickel)
Denmark	Grænseværdie (langvarig) (mg/m <sup>3</sup> )	0,05 mg/m <sup>3</sup> (dust and powder)
Estonia	OEL TWA (mg/m <sup>3</sup> )	0,5 mg/m <sup>3</sup>
Estonia	OEL chemical category (ET)	Sensitizer
Finland	HTP-arvo (8h) (mg/m <sup>3</sup> )	0,01 mg/m <sup>3</sup>
Finland	Finland - BEI	0,1 µmol/l (Medium: urine - Time: end of shift at end of workweek - Parameter: Nickel)
Hungary	MK-érték	0,1 mg/m <sup>3</sup>

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<b>Nickel (7440-02-0)</b>		
Hungary	OEL chemical category (HU)	Carcinogenic substance, Sensitizer
Ireland	OEL (8 hours ref) (mg/m <sup>3</sup> )	0,5 mg/m <sup>3</sup>
Ireland	OEL (15 min ref) (mg/m <sup>3</sup> )	1,5 mg/m <sup>3</sup> (calculated)
Lithuania	IPRV (mg/m <sup>3</sup> )	0,5 mg/m <sup>3</sup>
Lithuania	OEL chemical category (LT)	Carcinogen, Sensitizer
Norway	Greenseverdier (AN) (mg/m <sup>3</sup> )	0,05 mg/m <sup>3</sup>
Norway	Greenseverdier (Korttidsverdi) (mg/m <sup>3</sup> )	0,05 mg/m <sup>3</sup>
Norway	OEL chemical category (NO)	Carcinogen, Potential reproductive hazard, Sensitizing substance
Poland	NDS (mg/m <sup>3</sup> )	0,25 mg/m <sup>3</sup>
Romania	OEL TWA (mg/m <sup>3</sup> )	0,10 mg/m <sup>3</sup>
Romania	OEL STEL (mg/m <sup>3</sup> )	0,50 mg/m <sup>3</sup>
Romania	OEL chemical category (RO)	Carcinogen
Romania	Romania - BEI	15 µg/l (Medium: urine - Time: end of shift - Parameter: Nickel)
Slovakia	Slovakia - BEI	0,03 mg/l (Medium: blood - Time: end of exposure or work shift - Parameter: Nickel)
Slovenia	OEL TWA (mg/m <sup>3</sup> )	0,5 mg/m <sup>3</sup> (inhalable fraction)
Slovenia	OEL STEL (mg/m <sup>3</sup> )	2 mg/m <sup>3</sup> (inhalable fraction)
Slovenia	OEL chemical category (SL)	Category 2
Sweden	nivågränsvärde (NVG) (mg/m <sup>3</sup> )	0,5 mg/m <sup>3</sup> (total dust)
Sweden	OEL chemical category (SE)	Sensitizer
Portugal	OEL TWA (mg/m <sup>3</sup> )	1,5 mg/m <sup>3</sup> (inhalable fraction)
Portugal	OEL chemical category (PT)	A5 - Not Suspected as a Human Carcinogen
<b>Cobalt (7440-48-4)</b>		
Austria	TEL TRK (mg/m <sup>3</sup> )	0,5 mg/m <sup>3</sup> (hardened metal, magnet manufacturing, manufacture of Cobalt powder and catalysts-inhalable fraction) 0,1 mg/m <sup>3</sup> (all others-inhalable fraction)
Austria	OEL chemical category (AT)	Group A2 Carcinogen, Respiratory sensitizer, Skin notation, Skin sensitizer
Belgium	Limit value (mg/m <sup>3</sup> )	0,02 mg/m <sup>3</sup> (dust and fume)
Bulgaria	OEL TWA (mg/m <sup>3</sup> )	0,1 mg/m <sup>3</sup>
Croatia	GVI (granična vrijednost izloženosti) (mg/m <sup>3</sup> )	0,1 mg/m <sup>3</sup>
France	France - BEI	0,001 mg/l (Medium: blood - Time: end of shift at end of workweek - Parameter: Cobalt (Background noise on non-exposed subjects, Semi-quantitative (ambiguous interpretation)) 0,015 mg/l (Medium: urine - Time: end of shift at end of workweek - Parameter: Cobalt (Background noise on non-exposed subjects))
Greece	OEL TWA (mg/m <sup>3</sup> )	0,1 mg/m <sup>3</sup> (dust and fume)
USA ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	0,02 mg/m <sup>3</sup>
Latvia	OEL TWA (mg/m <sup>3</sup> )	0,5 mg/m <sup>3</sup>
Spain	VLA-ED (mg/m <sup>3</sup> )	0,02 mg/m <sup>3</sup>
Spain	OEL chemical category (ES)	Sensitizer

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<b>Cobalt (7440-48-4)</b>		
Spain	Spain - BEI	15 µg/l (Medium: urine - Time: end of workweek - Parameter: Cobalt) 1 µg/l (Medium: blood - Time: end of workweek - Parameter: Cobalt)
Switzerland	VME (mg/m <sup>3</sup> )	0,05 mg/m <sup>3</sup> (aerosol and dust, inhalable dust)
Switzerland	OEL chemical category (CH)	Category C2 carcinogen, Category 3 mutagen, Category 2 reproductive toxin, Sensitizer, Skin notation
Switzerland	Switzerland - BEI	30 µg/l (Medium: urine - Time: end of shift - Parameter: Cobalt)
Netherlands	Grenswaarde TGG 8H (mg/m <sup>3</sup> )	0,02 mg/m <sup>3</sup> (dust and smoke)
United Kingdom	WEL TWA (mg/m <sup>3</sup> )	0,1 mg/m <sup>3</sup>
United Kingdom	WEL STEL (mg/m <sup>3</sup> )	0,3 mg/m <sup>3</sup> (calculated)
United Kingdom	WEL chemical category	Capable of causing cancer and/or heritable genetic damage, Capable of causing occupational asthma
Czech Republic	Expoziční limity (PEL) (mg/m <sup>3</sup> )	0,05 mg/m <sup>3</sup>
Czech Republic	OEL chemical category (CZ)	Sensitizer
Denmark	Grænseværdie (langvarig) (mg/m <sup>3</sup> )	0,01 mg/m <sup>3</sup> (dust, fume and powder)
Estonia	OEL TWA (mg/m <sup>3</sup> )	0,05 mg/m <sup>3</sup>
Estonia	OEL chemical category (ET)	Sensitizer
Finland	HTP-arvo (8h) (mg/m <sup>3</sup> )	0,02 mg/m <sup>3</sup>
Hungary	AK-érték	0,1 mg/m <sup>3</sup>
Hungary	CK-érték	0,4 mg/m <sup>3</sup>
Hungary	OEL chemical category (HU)	Sensitizer
Ireland	OEL (8 hours ref) (mg/m <sup>3</sup> )	0,1 mg/m <sup>3</sup>
Ireland	OEL (15 min ref) (mg/m <sup>3</sup> )	0,3 mg/m <sup>3</sup> (calculated)
Ireland	OEL chemical category (IE)	Sensitizer
Lithuania	IPRV (mg/m <sup>3</sup> )	0,05 mg/m <sup>3</sup>
Lithuania	OEL chemical category (LT)	Carcinogen, Mutagen, Sensitizer
Norway	Grenseverdier (AN) (mg/m <sup>3</sup> )	0,02 mg/m <sup>3</sup> (fume)
Norway	Grenseverdier (Korttidsverdi) (mg/m <sup>3</sup> )	0,06 mg/m <sup>3</sup> (fume)
Norway	OEL chemical category (NO)	Potential reproductive hazard, Sensitizing substance
Poland	NDS (mg/m <sup>3</sup> )	0,02 mg/m <sup>3</sup>
Romania	OEL TWA (mg/m <sup>3</sup> )	0,05 mg/m <sup>3</sup>
Romania	OEL STEL (mg/m <sup>3</sup> )	0,10 mg/m <sup>3</sup>
Romania	Romania - BEI	15 µg/l (Medium: urine - Time: end of work week - Parameter: Cobalt) 1 µg/l (Medium: blood - Time: end of work week - Parameter: Cobalt)
Slovakia	NPHV (priemerná) (mg/m <sup>3</sup> )	0,5 mg/m <sup>3</sup> (metal)
Slovakia	NPHV (Hraničná) (mg/m <sup>3</sup> )	0,1 mg/m <sup>3</sup> (metal)
Slovakia	OEL chemical category (SK)	Sensitizer metal
Slovenia	OEL TWA (mg/m <sup>3</sup> )	0,5 mg/m <sup>3</sup> (inhalable fraction) 0,1 mg/m <sup>3</sup> (inhalable fraction)
Slovenia	OEL STEL (mg/m <sup>3</sup> )	2 mg/m <sup>3</sup> (inhalable fraction) 0,4 mg/m <sup>3</sup> (other-inhalable fraction)
Sweden	nivågränsvärde (NVG) (mg/m <sup>3</sup> )	0,02 mg/m <sup>3</sup> (total inhalable dust)

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<b>Cobalt (7440-48-4)</b>		
Sweden	OEL chemical category (SE)	Carcinogen, Sensitizer, Skin notation
Portugal	OEL TWA (mg/m <sup>3</sup> )	0,02 mg/m <sup>3</sup>
Portugal	OEL chemical category (PT)	A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans
<b>Iron (7439-89-6)</b>		
Bulgaria	OEL TWA (mg/m <sup>3</sup> )	6,0 mg/m <sup>3</sup> (containing <2% free Crystalline silicon dioxide in respirable fraction-dust, inhalable fraction)
Slovakia	NPHV (priemerná) (mg/m <sup>3</sup> )	6,0 mg/m <sup>3</sup> (total aerosol)
<b>Zirconium (7440-67-7)</b>		
Austria	MAK (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup> (inhalable fraction)
Austria	OEL chemical category (AT)	Respiratory sensitizer, Skin sensitizer
Germany	TRGS 900 Occupational exposure limit value (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup> (including Zirconium compounds, insoluble in water-inhalable fraction)
Germany	TRGS 900 chemical category	Respiratory system sensitization, Skin sensitization
Greece	OEL TWA (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>
Greece	OEL STEL (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup>
USA ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>
USA ACGIH	ACGIH STEL (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup>
Spain	VLA-ED (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>
Spain	VLA-EC (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup>
Denmark	Grænseværdie (langvarig) (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>
Finland	HTP-arvo (8h) (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup>
Ireland	OEL (8 hours ref) (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>
Ireland	OEL (15 min ref) (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup>
Lithuania	IPRV (mg/m <sup>3</sup> )	6 mg/m <sup>3</sup>
Poland	NDS (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>
Poland	NDSch (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup>
Romania	OEL TWA (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>
Romania	OEL STEL (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup>
Slovenia	OEL TWA (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup> (inhalable fraction, dust)
Portugal	OEL TWA (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>
Portugal	OEL STEL (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup>
Portugal	OEL chemical category (PT)	A4 - Not Classifiable as a Human Carcinogen
<b>Copper (7440-50-8)</b>		
Austria	MAK (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup> (inhalable fraction) 0,1 mg/m <sup>3</sup> (respirable fraction, smoke)
Austria	MAK Short time value (mg/m <sup>3</sup> )	4 mg/m <sup>3</sup> (inhalable fraction) 0,4 mg/m <sup>3</sup> (respirable fraction, smoke)
Belgium	Limit value (mg/m <sup>3</sup> )	0,2 mg/m <sup>3</sup> (fume) 1 mg/m <sup>3</sup> (dust and mist)
Bulgaria	OEL TWA (mg/m <sup>3</sup> )	0,1 mg/m <sup>3</sup> (metal vapor)
Croatia	GVI (granična vrijednost izloženosti) (mg/m <sup>3</sup> )	0,2 mg/m <sup>3</sup> (fume) 1 mg/m <sup>3</sup> (dust)
Croatia	KGVI (kratkotrajna granična vrijednost izloženosti) (mg/m <sup>3</sup> )	2 mg/m <sup>3</sup> (dust and fume)
France	VLE (mg/m <sup>3</sup> )	2 mg/m <sup>3</sup> (dust)

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<b>Copper (7440-50-8)</b>		
France	VME (mg/m <sup>3</sup> )	0,2 mg/m <sup>3</sup> (fume) 1 mg/m <sup>3</sup> (dust)
Greece	OEL TWA (mg/m <sup>3</sup> )	0,2 mg/m <sup>3</sup> (fume) 1 mg/m <sup>3</sup> (dust)
Greece	OEL STEL (mg/m <sup>3</sup> )	2 mg/m <sup>3</sup> (dust)
USA ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	0,2 mg/m <sup>3</sup> (fume)
Latvia	OEL TWA (mg/m <sup>3</sup> )	0,5 mg/m <sup>3</sup>
Spain	VLA-ED (mg/m <sup>3</sup> )	0,2 mg/m <sup>3</sup> (fume) 1 mg/m <sup>3</sup> (dust and mist)
Switzerland	VLE (mg/m <sup>3</sup> )	0,2 mg/m <sup>3</sup> (inhalable dust)
Switzerland	VME (mg/m <sup>3</sup> )	0,1 mg/m <sup>3</sup> (inhalable dust)
Netherlands	Grenswaarde TGG 8H (mg/m <sup>3</sup> )	0,1 mg/m <sup>3</sup> (inhalable fraction)
United Kingdom	WEL TWA (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup> (dust and mists) 0,2 mg/m <sup>3</sup> (fume)
United Kingdom	WEL STEL (mg/m <sup>3</sup> )	0,6 mg/m <sup>3</sup> (calculated-fume) 2 mg/m <sup>3</sup> (dust and mist)
Czech Republic	Expoziční limity (PEL) (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup> (dust) 0,1 mg/m <sup>3</sup> (fume)
Denmark	Grænseværdie (langvarig) (mg/m <sup>3</sup> )	1,0 mg/m <sup>3</sup> (dust and powder) 0,1 mg/m <sup>3</sup> (fume)
Estonia	OEL TWA (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup> (total dust) 0,2 mg/m <sup>3</sup> (respirable dust)
Finland	HTP-arvo (8h) (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup> 0,1 mg/m <sup>3</sup> (respirable dust and fume)
Hungary	AK-érték	1 mg/m <sup>3</sup> 0,1 mg/m <sup>3</sup> (fume)
Hungary	CK-érték	4 mg/m <sup>3</sup> 0,4 mg/m <sup>3</sup> (fume)
Ireland	OEL (8 hours ref) (mg/m <sup>3</sup> )	0,2 mg/m <sup>3</sup> (fume) 1 mg/m <sup>3</sup> (dust and mist)
Ireland	OEL (15 min ref) (mg/m <sup>3</sup> )	0,6 mg/m <sup>3</sup> (calculated-fume) 2 mg/m <sup>3</sup> (dust and mist)
Lithuania	IPRV (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup> (inhalable fraction) 0,2 mg/m <sup>3</sup> (respirable fraction)
Norway	Grenseverdier (AN) (mg/m <sup>3</sup> )	0,1 mg/m <sup>3</sup> (fume) 1 mg/m <sup>3</sup> (dust)
Norway	Grenseverdier (Korttidsverdi) (mg/m <sup>3</sup> )	0,1 mg/m <sup>3</sup> (fume) 1 mg/m <sup>3</sup> (dust)
Poland	NDS (mg/m <sup>3</sup> )	0,2 mg/m <sup>3</sup>
Romania	OEL TWA (mg/m <sup>3</sup> )	0,50 mg/m <sup>3</sup> (powder)
Romania	OEL STEL (mg/m <sup>3</sup> )	0,20 mg/m <sup>3</sup> (fume) 1,50 mg/m <sup>3</sup> (dust)
Slovakia	NPHV (priemerná) (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup> (dust) 0,1 mg/m <sup>3</sup> (fume)
Slovakia	NPHV (Hraničná) (mg/m <sup>3</sup> )	2 mg/m <sup>3</sup> (dust) 0,2 mg/m <sup>3</sup> (fume)
Slovenia	OEL TWA (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup> (inhalable fraction) 0,1 mg/m <sup>3</sup> (respirable fraction, fume)
Slovenia	OEL STEL (mg/m <sup>3</sup> )	4 mg/m <sup>3</sup> (inhalable fraction) 0,4 mg/m <sup>3</sup> (respirable fraction, fume)



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<b>Copper (7440-50-8)</b>		
Sweden	nivågränsvärde (NVG) (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup> (total dust) 0,2 mg/m <sup>3</sup> (respirable dust)
Portugal	OEL TWA (mg/m <sup>3</sup> )	0,2 mg/m <sup>3</sup> (fume) 1 mg/m <sup>3</sup> (dust and mist)

### 8.2. Exposure controls

Appropriate engineering controls : Ensure adequate ventilation, especially in confined areas. Use wet processes for cutting and grinding.

Personal protective equipment : Protective goggles. Gloves For particulates and dust:



Materials for protective clothing : For particulates and dust: Chemically resistant materials and fabrics.

Hand protection : Wear protective gloves.

Eye protection : Chemical safety goggles.

Skin and body protection : Wear suitable protective clothing.

Respiratory protection : If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn.

Other information : When using, do not eat, drink or smoke.

## SECTION 9: Physical and chemical properties

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

Physical state	: Solid
Colour	: Silver-grey
Odour	: None
Odour threshold	: Not applicable
pH	: Not applicable
Evaporation rate	: No data available
Melting point	: 1250 °C (2282 °F)
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Solubility	: No data available
Partition coefficient: n-octanol/water	: No data available
Viscosity	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Hazardous reactions will not occur under normal conditions.

### 10.2. Chemical stability

Stable under recommended handling and storage conditions (see section 7).

### 10.3. Possibility of hazardous reactions

Hazardous polymerization will not occur.

### 10.4. Conditions to avoid

None known.

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### 10.5. Incompatible materials

None known.

### 10.6. Hazardous decomposition products

Thermal decomposition generates: Metal oxides.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity : Oral: Harmful if swallowed. Dermal: Harmful in contact with skin. Inhalation:dust,mist: Harmful if inhaled.

RECOMA STAB 2:17	
ATE CLP (oral)	617,01 mg/kg bodyweight
ATE CLP (dermal)	1.358,02 mg/kg bodyweight
ATE CLP (dust,mist)	1,85 mg/l/4h
Nickel (7440-02-0)	
LD50 oral rat	> 9000 mg/kg
Cobalt, compound with samarium (5:1) (12017-68-4)	
ATE CLP (oral)	500,00 mg/kg bodyweight
ATE CLP (dermal)	1.100,00 mg/kg bodyweight
ATE CLP (dust,mist)	1,50 mg/l/4h
Cobalt (7440-48-4)	
LD50 oral rat	215,9 - 1140 mg/kg
LC50 inhalation rat (mg/l)	> 10 mg/l (Exposure time: 1 h)
ATE CLP (oral)	215,90 mg/kg bodyweight
ATE CLP (dust,mist)	0,01 mg/l/4h
Iron (7439-89-6)	
LD50 oral rat	984 mg/kg

Skin corrosion/irritation : Causes skin irritation.  
Serious eye damage/irritation : Causes serious eye irritation.  
Respiratory or skin sensitisation : Not classified  
Germ cell mutagenicity : Not classified  
Carcinogenicity : Not classified

Nickel (7440-02-0)	
IARC group	2B
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen.
Cobalt (7440-48-4)	
IARC group	2B
National Toxicology Program (NTP) Status	Evidence of Carcinogenicity.

Reproductive toxicity : Not classified  
Specific target organ toxicity (single exposure) : May cause respiratory irritation.  
Specific target organ toxicity (repeated exposure) : Not classified  
Aspiration hazard : Not classified  
Symptoms/Injuries After Inhalation : For particulates and dust: Irritation of the respiratory tract and the other mucous membranes. Inhalation is likely to cause adverse health effects including but not limited to: irritation, difficulty breathing, and unconsciousness.  
Symptoms/Injuries After Skin Contact : For particulates and dust: Redness, pain, swelling, itching, burning, dryness, and dermatitis. This material is harmful through skin contact, and can cause adverse health effects or death in significant amounts. This material may be absorbed through the skin and eyes. May cause an allergic skin reaction.  
Symptoms/Injuries After Eye Contact : For particulates and dust: Contact causes severe irritation with redness and swelling of the conjunctiva.

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Symptoms/Injuries After Ingestion : For particulates and dust: This material is harmful orally and can cause adverse health effects or death in significant amounts.  
Chronic Symptoms : For particulates and dust: Suspected of causing cancer.

## SECTION 12: Ecological information

### 12.1. Toxicity

Ecology - general : Not classified.

#### Nickel (7440-02-0)

LC50 fish 1	100 mg/l (Exposure time: 96 h - Species: Brachydanio rerio)
EC50 Daphnia 1	121,6 µg/l (Exposure time: 48h - Species: Ceriodaphnia dubia [static])
LC50 fish 2	15,3 mg/l
EC50 Daphnia 2	1 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
EC50 other aquatic organisms 2	0,174 (0,174 - 0,311) mg/l (Exposure time: 96 h - Species: Pseudokirchneriella subcapitata [static])

#### Copper (7440-50-8)

LC50 fish 1	0,0068 (0,0068 - 0,0156) mg/l (Exposure time: 96 h - Species: Pimephales promelas)
EC50 Daphnia 1	0,03 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
EC50 other aquatic organisms 1	0,0426 (0,0426 - 0,0535) mg/l (Exposure time: 72 h - Species: Pseudokirchneriella subcapitata [static])
LC50 fish 2	0,3 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])
EC50 other aquatic organisms 2	0,031 (0,031 - 0,054) mg/l (Exposure time: 96 h - Species: Pseudokirchneriella subcapitata [static])

### 12.2. Persistence and degradability

#### Copper (7440-50-8)

Persistence and degradability : Not readily biodegradable.

### 12.3. Bioaccumulative potential

Not established

### 12.4. Mobility in soil

No additional information available

### 12.5. Results of PBT and vPvB assessment

No additional information available

### 12.6. Other adverse effects

Other information : Avoid release to the environment.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Waste disposal recommendations : Dispose of contents/container in accordance with local, regional, national, and international regulations.

Ecology - waste materials : Avoid release to the environment.

## SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

ADR	IMDG	IATA	ADN	RID
<b>14.1. UN number</b>				
Not regulated for transport				
<b>14.2. UN proper shipping name</b>				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
<b>14.3. Transport hazard class(es)</b>				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
<b>14.4. Packing group</b>				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
<b>14.5. Environmental hazards</b>				
Dangerous for the	Dangerous for the	Dangerous for the	Dangerous for the	Dangerous for the

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ADR	IMDG	IATA	ADN	RID
environment : No	environment : No Marine pollutant : No	environment : No	environment : No	environment : No

### 14.6. Special precautions for user

Protect from breakage. Parts may be magnetic – no pacemakers near contents.

### 14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Not applicable

## SECTION 15: Regulatory information

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

#### 15.1.1. EU-Regulations

Contains no REACH substances with Annex XVII restrictions

Contains no substance on the REACH candidate list

Contains no REACH Annex XIV substances

#### Nickel (7440-02-0)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

#### Cobalt, compound with samarium (5:1) (12017-68-4)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

#### Iron (7439-89-6)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

#### Zirconium (7440-67-7)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

#### Copper (7440-50-8)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

#### Gadolinium (7440-54-2)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

#### 15.1.2. National regulations

No additional information available

### 15.2. Chemical safety assessment

No chemical safety assessment has been carried out

## SECTION 16: Other information

Revision date : 04/04/2016

Data sources : According to Regulation (EC) No. 1907/2006 (REACH) with its amendment  
Regulation (EU) 2015/830

Full text of H- and EUH-statements:

Acute Tox. 4 (Dermal)	Acute toxicity (dermal), Category 4
Acute Tox. 4 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Chronic 3	Hazardous to the aquatic environment — Chronic Hazard, Category 3
Carc. 2	Carcinogenicity, Category 2
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Skin Irrit. 2	Skin corrosion/irritation, Category 2
Skin Sens. 1	Sensitisation — Skin, Category 1
STOT RE 1	Specific target organ toxicity — Repeated exposure, Category 1
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation
H302	Harmful if swallowed
H312	Harmful in contact with skin
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H319	Causes serious eye irritation
H332	Harmful if inhaled
H335	May cause respiratory irritation

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H351	Suspected of causing cancer
H372	Causes damage to organs through prolonged or repeated exposure
H412	Harmful to aquatic life with long lasting effects
EUH208	Contains . May produce an allergic reaction

EU GHS SDS

*This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.*