

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/22/2023

Reviewed on 05/22/2023

1 Identification

· Product identifier

· **Trade name:** VACODYM 131, 2xx, 510, 6xx, 7xx, 8xx, 9xx

· **Material Safety Data Sheet No.:** SDS 56 Edition 02

· Application of the substance / the mixture

For industrial and commercial applications:

1. permanent magnets (uncoated and coated as well as non-magnetic or magnetized) for use e.g. in systems, motors, generators, sensors, e-mobility. Available coatings: see section 3.

2. permanent magnet blocks for the production of permanent magnets (by mechanical processing).

· Details of the supplier of the safety data sheet

· Manufacturer/Supplier:

Vacuumschmelze GmbH & Co.KG

Grüner Weg 37

D-63450 HANAU

DEUTSCHLAND

datasheed@vacuumschmelze.com

· **Information department:** Department Development Chemical Technology Permanent Magnets

· **Emergency telephone number:** +49-6181-38-2250 available Mon-Fri. 8: 00-17: 00

2 Hazard(s) identification

· Classification of the substance or mixture



GHS08 Health hazard

Sensitization - Respiratory 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Germ Cell Mutagenicity 2 H341 Suspected of causing genetic defects.

Carcinogenicity 2 H351 Suspected of causing cancer.

Toxic to Reproduction 1B H360 May damage fertility or the unborn child.



GHS07

Sensitization - Skin 1

H317 May cause an allergic skin reaction.

· Label elements

· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

· Hazard pictograms



GHS08

· Signal word Danger

· Hazard-determining components of labeling:

cobalt

nickel (as coating)

Solvent Black 27 (contained in the coatings VACCOAT 20011 and 20021)

· Hazard statements

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

May cause an allergic skin reaction.

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Suspected of causing genetic defects.

Suspected of causing cancer.

May damage fertility or the unborn child.

· **Precautionary statements**

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Avoid breathing dust/fume/gas/mist/vapors/spray

Contaminated work clothing must not be allowed out of the workplace.

Wear protective gloves/protective clothing/eye protection/face protection.

[In case of inadequate ventilation] wear respiratory protection.

If on skin: Wash with plenty of water.

If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing.

IF exposed or concerned: Get medical advice/attention.

Specific treatment (see on this label).

If skin irritation or rash occurs: Get medical advice/attention.

If experiencing respiratory symptoms: Call a poison center/doctor.

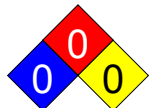
Wash contaminated clothing before reuse.

Store locked up.

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

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



Health = 0

Fire = 0

Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



Health = *0

Fire = 0

Reactivity = 0

· **Other hazards**

Additional hazards resulting from the uses:

1. Use as supplied, for assembly, for example, in technical systems.

a) Magnetized parts generate magnetic fields and can exert forces of attraction on other magnetizable parts / substances. Electronic devices and measuring instruments can have their calibration changed or damaged by high field strengths. In particular, magnetized parts must be kept at a safe distance from computers, monitors and magnetic data carriers, as well as from active and passive implants (for example, heart pacemakers or artificial joints).

People with implants should be particularly careful when handling magnets and / or magnet systems. Safety distances must be observed, otherwise the implant may malfunction.

There is a risk of injury when handling magnetized parts. This can result in severe crushing injuries if they are handled improperly.

Magnets must not be used in potentially explosive atmospheres because sparks may be generated in the event of a collision.

b) Parts delivered magnetized are subject to the IATA transport guidelines relating to the external magnetic field of the packaging, for this, see Point 14 SIDA.

c) Skin contact with the magnet surfaces may cause allergic reactions due to the cobalt content or in the case of nickel-plated magnets.

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d) Dusty abraded material generated during assembly work, for example, in feed lines, can, due to the cobalt content, be carcinogenic when inhaled and / or cause allergies which must be assessed on a workplace-specific basis.

Respirable fine cobalt metal powder (grain size $\leq 10\mu\text{m}$) is also "Acutely toxic by inhalation Category 1".

2. Aqueous mechanical processing, for example, with the use of cooling lubricants:

a) Due to the rare earth content, the resulting abraded material reacts with the aqueous processing agents to form hydrogen. **ATTENTION: Formation of hazardous explosive (EX) atmospheres possible!**

Part of the hydrogen produced is stored in the material. The resulting processing slurries must be kept under protective liquid because the slurries that dry out can react in a self-heating or pyrophoric manner. When the temperature rises, the stored hydrogen is released and ex-atmospheres can form or the hydrogen burns off including the organics with flame / soot formation (in contrast to pure metal fires).

b) Abraded metal and metal ions such as cobalt are introduced during aqueous mechanical machining using cooling lubricants. This can lead to sensitization and allergic reactions of the skin in the event of prolonged and repeated skin contact. In addition, aerosols containing cobalt, which must be assessed on a workplace-specific basis, can be generated. This can be partly prevented by using cobalt-inhibited cooling lubricants.

Additional hazard statements:

Aqueous abraded metal material / aqueous grinding sludge develop hydrogen.

EUH 018: In use may form flammable / explosive vapour - air mixtures.

On drying out:

Pyrophoric and / or self-heating materials may be present.

H 260: In contact with water releases flammable gases which may ignite spontaneously.

H 250: Catches fire spontaneously if exposed to air.

H 251: Self-heating; may catch fire.

Additional information about machining residues / waste (grinding sludge and used cooling lubricants):

In Section 13: European List of Waste: In addition to the phrases listed there, HP3 and HP4 still apply to them.

In Section 15: Self-classification of machining residues in water hazard Class 3 (highly hazardous to water).

Additional information:

Only use cooling lubricants that are inhibited against the dissolution of cobalt as the metallic cobalt is dissolved out in ionic form on contact with the magnet and enriched in the cooling lubricant. This effect can cause increased exposure of the processor to cobalt salts which can cause allergies through skin contact or be absorbed into the body through inhalation of the cooling lubricant aerosol.

On drying out:

P210: Keep away from heat / sparks / open flames / hot surfaces – No smoking.

P222: Do not allow contact with air.

P280: Wear protective gloves / protective clothing / eye protection / face protection.

P332+P313: If skin irritation occurs: Get medical advice / attention.

P337+P313: If eye irritation persists, get medical advice / attention.

3. Dust-forming mechanical processing (for example, dry-blasting process):

a) Such processes are not recommended. As it produces self-heating or pyrophoric dusts with a tendency to explode, the dry mechanical processing of rare earth permanent magnet alloys is only permissible under special safety precautions. The dust arising containing cobalt is carcinogenic and can cause allergies. Respirable fine cobalt metal powder (grain size $\leq 10\mu\text{m}$) is also "Acutely toxic by inhalation Category 1".

Additional hazard statements:

H 250: Catches fire spontaneously if exposed to air.

H 251: Self-heating; may catch fire.

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EUH 018: In use may form flammable / explosive vapour - air mixtures.

H 315: Causes skin irritation.

H 319: Causes serious eye irritation.

Additional information regarding machining residues / waste (grinding sludge):

Self-classification in water hazard Class 3 (highly hazardous to water).

European List of Waste: Additionally, HP3 and HP4.

Additional safety statements:

P210: Keep away from heat / sparks / open flames / hot surfaces – No smoking.

P222: Do not allow contact with air.

P280: Wear protective gloves / protective clothing / eye protection / face protection.

P332+P313: If skin irritation occurs: Get medical advice / attention.

P337+P313: If eye irritation persists, get medical advice / attention.

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**

7440-48-4	cobalt	0.5-3.5%
7429-90-5	aluminium	<0.3%
7440-42-8	boron	0.8-1%
7440-50-8	copper	<0.3%
7440-55-3	gallium	<0.3%
7440-67-7	zirconium	<0.3%
7440-02-0	nickel (as coating)	<9%
12237-22-8	Solvent Black 27 (contained in the coatings VACCOAT 20011 and 20021)	<0.03%

· **Non-hazardous components**

(*) The proportion of rare earths (neodymium, dysprosium, praseodymium and terbium) is 28-34%

7439-89-6	iron	60-70%
7429-91-6	dysprosium	(*)%
7440-00-8	neodymium	(*)%
7440-10-0	praseodymium	(*)%
7440-27-9	terbium	(*)%
7429-90-5	aluminium (as coating)	<9%
7440-31-5	tin (as coating)	<9%
7440-57-5	gold (as coating)	<5%
25583-20-4	titanium nitride (as coating)	<3%
7440-03-1	niobium	<0.3%
7440-32-6	titanium (powder)	<0.3%

· **Additional information:**

Alloys containing nickel are classified as skin sensitizing if the release exceeds 0.5 µg Ni/cm²/week measured using the European Standard Reference Method EN 1811.

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Details of the possible coatings and bonded magnet systems:

Coating: IVD aluminium
Application: Ion Vapour Deposition
Composition: Aluminium, passivated
Type. Coating thickness: < 10µm

Coating: PVD titanium nitride
Application: Physical Vapour Deposition
Composition: Titanium nitride
Type. Coating thickness: < 10µm

Coating: VACCOAT 10047
Application: Aluminium spray painting
Composition: Cured phenolic resin base with aluminium content
Type. Coating thickness: < 20µm

Coating: VACCOAT 20011, 20021 und 30033
Application: Spray painting
Composition: Cured phenolic resin base
Type. Coating thickness: < 20µm

Coating: Nickel
Application: Galvanic
Composition: Nickel
Type. Coating thickness: < 30µm

Coating: Tin
Application: Galvanic
Composition: Tin
Type. Coating thickness: < 30µm

Coating: Tin / nickel and nickel / tin
Application: Galvanic
Composition: Nickel / tin
Type. Coating thickness: < 30µm (total)

Coating: Nickel / gold
Application: Galvanic
Composition: Nickel / gold
Type. Coating thickness: < 30µm (total)

Bonding: Bonded magnets, bonded coated magnets
Application: Bonding
Composition: Epoxy resin based / acrylic cured adhesives
Type. Coating thickness: Adhesive joint application-related

In the cured and /or delivered form, the organic coatings and adhesives do not contain any substances hazardous to health or the environment (in accordance with Regulation (EC) No. 1272/2008 - Annex VI).

The metallic coatings – with the exception of the nickel coating - are not classified in accordance with Regulation (EC) No. 1272/2008 - Annex VI). The classification of the nickel coating has been made under Point 3. Furthermore, Point 2 of the safety data sheet must be observed.

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Dust formation of the coating materials is not foreseen in the application. The general dust limit values and / or substance limit values of the coating materials and their ingredients must be used for dusts generated in the event of improper use.

REACH - SVHC

Substances of very high concern (Candidate List of Substances of Very High Concern), in accordance with REACH; Article 57:

Magnets and coatings contain none or less than 0.1% of the listed substances.

RoHS

"Restriction of (the use of certain) Hazardous Substances in Electrical and Electronic Equipment"-

Restriction of the use of certain hazardous substances in electrical and electronic equipment:

Magnets and coated magnets are RoHS compliant.

4 First-aid measures

- **Description of first aid measures**
- **After inhalation:**
Supply fresh air and to be sure call for a doctor.
In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:** Rinse opened eye for several minutes under running water.
- **After swallowing:** If symptoms persist consult doctor.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Use respiratory protective device against the effects of fumes/dust/aerosol.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Dispose contaminated material as waste according to section 13.
Ensure adequate ventilation.
- **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

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· Protective Action Criteria for Chemicals

· PAC-1:

7439-89-6	iron	3.2 mg/m ³
7429-91-6	dysprosium	30 mg/m ³
7440-00-8	neodymium	30 mg/m ³
7440-10-0	praseodymium	1.2 mg/m ³
7440-27-9	terbium	1.2 mg/m ³
7440-31-5	tin (as coating)	6 mg/m ³
7440-57-5	gold (as coating)	0.46 mg/m ³
7440-48-4	cobalt	0.18 mg/m ³
7440-03-1	niobium	30 mg/m ³
7440-32-6	titanium (powder)	30 mg/m ³
7440-42-8	boron	1.9 mg/m ³
7440-50-8	copper	3 mg/m ³
7440-55-3	gallium	30 mg/m ³
7440-67-7	zirconium	10 mg/m ³
7440-02-0	nickel (as coating)	4.5 mg/m ³

· PAC-2:

7439-89-6	iron	35 mg/m ³
7429-91-6	dysprosium	330 mg/m ³
7440-00-8	neodymium	330 mg/m ³
7440-10-0	praseodymium	13 mg/m ³
7440-27-9	terbium	13 mg/m ³
7440-31-5	tin (as coating)	67 mg/m ³
7440-57-5	gold (as coating)	5.1 mg/m ³
7440-48-4	cobalt	2 mg/m ³
7440-03-1	niobium	330 mg/m ³
7440-32-6	titanium (powder)	330 mg/m ³
7440-42-8	boron	21 mg/m ³
7440-50-8	copper	33 mg/m ³
7440-55-3	gallium	330 mg/m ³
7440-67-7	zirconium	83 mg/m ³
7440-02-0	nickel (as coating)	50 mg/m ³

· PAC-3:

7439-89-6	iron	150 mg/m ³
7429-91-6	dysprosium	2,000 mg/m ³
7440-00-8	neodymium	2,000 mg/m ³
7440-10-0	praseodymium	79 mg/m ³
7440-27-9	terbium	79 mg/m ³
7440-31-5	tin (as coating)	400 mg/m ³
7440-57-5	gold (as coating)	30 mg/m ³
7440-48-4	cobalt	20 mg/m ³
7440-03-1	niobium	2,000 mg/m ³

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7440-32-6	titanium (powder)	2,000 mg/m ³
7440-42-8	boron	130 mg/m ³
7440-50-8	copper	200 mg/m ³
7440-55-3	gallium	2,000 mg/m ³
7440-67-7	zirconium	500 mg/m ³
7440-02-0	nickel (as coating)	99 mg/m ³

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
- **Information about protection against explosions and fires:** Keep respiratory protective device available.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep receptacle tightly sealed.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see section 7.
- **Control parameters**
- **Components with limit values that require monitoring at the workplace:**
The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit.
At this time, the other constituents have no known exposure limits.

7440-48-4 cobalt

PEL	Long-term value: 0.1* mg/m ³ as Co; *for metal dust and fume
REL	Long-term value: 0.05 mg/m ³ as Co; metal dust & fume
TLV	Long-term value: 0.02* mg/m ³ *inh. fraction; DSEN, RSEN, BEI, A3

7429-90-5 aluminium

PEL	Long-term value: 15*; 5** mg/m ³ *Total dust; ** Respirable fraction
REL	Long-term value: 10* 5** mg/m ³ as Al*Total dust**Respirable/pyro powd./welding f.
TLV	Long-term value: 1* mg/m ³ as Al; *as respirable fraction

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7440-50-8 copper

PEL	Long-term value: 1* 0.1** mg/m ³ as Cu *dusts and mists **fume
REL	Long-term value: 1* 0.1** mg/m ³ as Cu *dusts and mists **fume
TLV	Long-term value: 1* 0.2** mg/m ³ *dusts and mists; **fume; as Cu

7440-67-7 zirconium

PEL	Long-term value: 5 mg/m ³ as Zr
REL	Short-term value: 10 mg/m ³ Long-term value: 5 mg/m ³ as Zr
TLV	Short-term value: 10 mg/m ³ Long-term value: 5 mg/m ³ as Zr

· Ingredients with biological limit values:**7440-48-4 cobalt**

BEI	15 µg/L Medium: urine Time: end of shift at end of workweek Parameter: Cobalt (nonspecific)
	1 µg/l Medium: blood Time: end of shift at end of workweek Parameter: Cobalt (background, semi-quantitative)

· Additional information:

The lists that were valid during the creation were used as basis.

German limit value - cobalt:

ERB: 0.5 µg/m³ (1),(3) or 5 µg/m³ (1),(2)

(1) respirable fraction (2) workplace concentration corresponding to the proposed tolerable cancer risk. (see background document: Germany AGS) (3) Workplace concentration corresponding to the proposed provisional acceptable cancer risk. (see background document: Germany AGS)

· Exposure controls**· Personal protective equipment:****· General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Store protective clothing separately.

· Breathing equipment:

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

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· **Protection of hands:**



Avoid repeated and prolonged skin contact, wear protective gloves.

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Preventive skin protection by use of skin-protecting agents is recommended.

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:** Not required.

9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form:	Solid in various forms
Color:	Various (depending on the coating)
Odor:	Odorless
Odor threshold:	Not determined.

· **pH-value:** Not applicable.

· **Change in condition**

Melting point/Melting range:	1,000–1,200 °C (33.800–34.200 °F)
Boiling point/Boiling range:	Undetermined.

· **Flash point:** Not applicable.

· **Flammability (solid, gaseous):** Product is not flammable.

· **Decomposition temperature:** Not determined.

· **Ignition temperature:** Product is not selfigniting.

· **Danger of explosion:** Product does not present an explosion hazard.

· **Explosion limits:**

Lower:	Not determined.
Upper:	Not determined.

· **Vapor pressure:** Not applicable.

Density at 20 °C (68 °F):	7.5–7.8 g/cm ³ (62.6–65.1 lbs/gal)
Relative density	Not determined.
Vapor density	Not applicable.
Evaporation rate	Not applicable.

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- | | |
|---|--|
| · Solubility in / Miscibility with Water: | Insoluble. |
| · Partition coefficient (n-octanol/water): | Not determined. |
| · Viscosity: | |
| Dynamic: | Not applicable. |
| Kinematic: | Not applicable. |
| VOC content: | 0.00 % |
| Solids content: | 100.0 % |
| · Other information | No further relevant information available. |

10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

- **LD/LC50 values that are relevant for classification:**

7440-48-4 cobalt

Oral	LD50	6,170 mg/kg (rat)
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7440-42-8 boron

Oral	LD50	650 mg/kg (rat)
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7440-55-3 gallium

Oral	LD50	500 mg/kg (ATE)
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12237-22-8 Solvent Black 27 (contained in the coatings VACCOAT 20011 and 20021)

Oral	LD50	>10,000 mg/kg (rat)
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Dermal	LD50	>2,000 mg/kg (rat)
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- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No irritating effect.
- **Sensitization:**
- Sensitization possible through inhalation.
- Sensitization possible through skin contact.
- **Additional toxicological information:**
- The product shows the following dangers according to internally approved calculation methods for preparations:
- Harmful
- Irritant

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- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

7440-48-4	cobalt	2B
7440-02-0	nickel (as coating)	2B

- **NTP (National Toxicology Program)**

7440-48-4	cobalt	R
7440-02-0	nickel (as coating)	R

- **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

12 Ecological information

- **Toxicity**

- **Aquatic toxicity:** No further relevant information available.

- **Persistence and degradability** No further relevant information available.

- **Behavior in environmental systems:**

- **Bioaccumulative potential** No further relevant information available.

- **Mobility in soil** No further relevant information available.

- **Additional ecological information:**

- **General notes:** Water hazard class 1 (Self-assessment): slightly hazardous for water

- **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.

- **vPvB:** Not applicable.

- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**

- **Recommendation:**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
Send for proper recycling.

- **Uncleaned packagings:**

- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- **UN-Number**

- **DOT, IMDG, IATA** not regulated

- **UN proper shipping name**

- **DOT, IMDG, IATA** not regulated

- **Transport hazard class(es)**

- **DOT, ADN, IMDG**

- **Class** not regulated

- **IATA**

Air transport ICAO TI and IATA DGR:

-Non-magnetized parts:

Not hazardous goods within the meaning of the aforementioned

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	regulation. -Magnetized parts in packaging units: Under certain circumstances, magnets can be classified as dangerous goods in air freight in accordance with the packing instruction IATA 953. Carry out the test for classification in accordance with the IATA regulation. If the test is positive, applicable is: UN Number: 2807 Transport hazard classes: 9 UN proper shipping name: Magnetized substances.
· Class	not regulated
· Packing group	
· DOT, IMDG, IATA	not regulated
· Environmental hazards:	Not applicable.
· Special precautions for user	Not applicable.
· Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable.
· UN "Model Regulation":	not regulated

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
No further relevant information available.

· **Sara**

· **Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**

7440-48-4 cobalt

7440-50-8 copper

7440-02-0 nickel (as coating)

· **TSCA (Toxic Substances Control Act):**

7439-89-6 iron

ACTIVE

7429-91-6 dysprosium

ACTIVE

7440-00-8 neodymium

ACTIVE

7440-10-0 praseodymium

ACTIVE

7440-27-9 terbium

ACTIVE

7440-31-5 tin (as coating)

ACTIVE

7440-57-5 gold (as coating)

ACTIVE

25583-20-4 titanium nitride (as coating)

ACTIVE

7440-48-4 cobalt

ACTIVE

7440-03-1 niobium

ACTIVE

7440-32-6 titanium (powder)

ACTIVE

7440-42-8 boron

ACTIVE

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7440-50-8	copper	ACTIVE
7440-55-3	gallium	ACTIVE
7440-67-7	zirconium	ACTIVE
7440-02-0	nickel (as coating)	ACTIVE

· **Hazardous Air Pollutants**

7440-48-4	cobalt
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· **Proposition 65**

· **Chemicals known to cause cancer:**

7440-48-4	cobalt
7440-02-0	nickel (as coating)

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

7440-42-8	boron	I (oral)
7440-50-8	copper	D

· **TLV (Threshold Limit Value)**

7440-48-4	cobalt	A3
7440-67-7	zirconium	A4
7440-02-0	nickel (as coating)	A5

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

7440-02-0	nickel (as coating)
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· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



GHS08

· **Signal word** Danger

· **Hazard-determining components of labeling:**

cobalt

nickel (as coating)

Solvent Black 27 (contained in the coatings VACCOAT 20011 and 20021)

· **Hazard statements**

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

May cause an allergic skin reaction.

Suspected of causing genetic defects.

Suspected of causing cancer.

May damage fertility or the unborn child.

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· **Precautionary statements**

- Obtain special instructions before use.
- Do not handle until all safety precautions have been read and understood.
- Avoid breathing dust/fume/gas/mist/vapors/spray
- Contaminated work clothing must not be allowed out of the workplace.
- Wear protective gloves/protective clothing/eye protection/face protection.
- [In case of inadequate ventilation] wear respiratory protection.
- If on skin: Wash with plenty of water.
- If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing.
- IF exposed or concerned: Get medical advice/attention.
- Specific treatment (see on this label).
- If skin irritation or rash occurs: Get medical advice/attention.
- If experiencing respiratory symptoms: Call a poison center/doctor.
- Wash contaminated clothing before reuse.
- Store locked up.
- Dispose of contents/container in accordance with local/regional/national/international regulations.
- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

* **16 Other information**

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Contact:**

· **Date of preparation / last revision** 05/22/2023

· **Abbreviations and acronyms:**

- IMDG: International Maritime Code for Dangerous Goods
- DOT: US Department of Transportation
- IATA: International Air Transport Association
- EINECS: European Inventory of Existing Commercial Chemical Substances
- ELINCS: European List of Notified Chemical Substances
- CAS: Chemical Abstracts Service (division of the American Chemical Society)
- NFPA: National Fire Protection Association (USA)
- HMIS: Hazardous Materials Identification System (USA)
- VOC: Volatile Organic Compounds (USA, EU)
- LC50: Lethal concentration, 50 percent
- LD50: Lethal dose, 50 percent
- PBT: Persistent, Bioaccumulative and Toxic
- vPvB: very Persistent and very Bioaccumulative
- NIOSH: National Institute for Occupational Safety
- OSHA: Occupational Safety & Health
- TLV: Threshold Limit Value
- PEL: Permissible Exposure Limit
- REL: Recommended Exposure Limit
- BEI: Biological Exposure Limit
- Sensitization - Respiratory 1: Respiratory sensitisation – Category 1
- Sensitization - Skin 1: Skin sensitisation – Category 1
- Germ Cell Mutagenicity 2: Germ cell mutagenicity – Category 2
- Carcinogenicity 2: Carcinogenicity – Category 2
- Toxic to Reproduction 1B: Reproductive toxicity – Category 1B

· * **Data compared to the previous version altered.**

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