

MATERIAL SAFETY DATA SHEET

According to Regulation (EC) No. 1907/2006 (Reach) and Regulation (EU) No. 2015/830
NPM Dental Alloys



Rev: 01/08.04.2024

replaces: --

Dok: MSDS Realloy Powder EN Rev 01_22.04.2024

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

1.1 Product identifier

Cobalt based alloys

Realloy C Powder

Realloy Classic Powder

Realloy BC Powder

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

General use: Manufacturing of dental prostheses in dental laboratories using the SLM-process

1.3 Details of the supplier of the safety data sheet

Adresse:

Realloy e.K.

Moerser Str. 232

47803 Krefeld

Telefon-Nr.:

+49 (0)2151 486 49 75

E-Mail:

info@realloy.net

Web:

www.realloy.net

Manufacturer:

Address:

German Special Alloys GmbH

Carl-Friedrich-Benz-Str. 1b

47877 Willich

Germany

Telephone:

+49 (0)2154-88 09 180

E-Mail:

info@gs-alloys.de

Web:

www.german-special-alloys.com

Information provided by

Sales Department: +49 (0)2154-88 09 180

1.4 Emergency telephone number

For medical advice (*in German and English*):

+49 (0)551 192 40 (Information Center Germany North for poisonous substances)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to EC Regulation 1272/2008 (CLP)

Carc. 1B; H350

May cause cancer.

Muta. 2; H341

Suspected of causing genetic defects.

Repr. 1A; H360F

May damage fertility.

Resp. Sens. 1; H334

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

Skin Sens. 1; H317

May cause an allergic skin reaction.

Aquatic Chronic 4; H413

May cause long lasting harmful effects to aquatic life.

2.2 Label elements

Labelling according to EC-Regulation 1272/2008 (CLP)

Hazard pictograms

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GHS08

Signal word: **Danger**

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Hazard statements

H317	May cause an allergic skin reaction.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H341	Suspected of causing genetic defects.
H350	May cause cancer.
H360F	May damage fertility.
H413	May cause long lasting harmful effects to aquatic life.

Precautionary statements

P201	Obtain special instructions before use.
P261	Avoid breathing dust.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P342+P311	If experiencing respiratory symptoms: Call a POISON CENTER/doctor.
P362+P364	Take off immediately all contaminated clothing and wash it before reuse.

Special labelling

Text for labelling: Contains: Cobalt.

As alloy this product does not require labelling if it fulfils the criteria of Annex I section 1.3.4 of the CLP Regulation.

2.3 Other hazards

During processing, dust may form explosive mixture in air.
Mechanical processing can produce particles and dust. Dust contact with the eyes can lead to mechanical irritation. Inhalation of dust may cause irritation of the respiratory system.

Results of PBT and vPvB assessment:

The alloys under concern are not known to be persistent, bioaccumulating nor toxic.

SECTION 3: Composition / information on ingredients

3.1 **Substances:** not applicable.

3.2 Mixtures:

Chemical characterisation: Mixture of the substances listed below with non-hazardous additions.
Hazard-determining component: Cobalt.

Ingredients:

No.	Substance name CAS / EC / Index	Classification (EC) 1272/2008 (CLP) or other notifications	Content
1	Cobalt EC-No. 231-158-0 CAS-No.-No. 7440-48-4	CLP: Carc. 1B; H350 CLP: Muta. 2; H341 CLP: Repr. 1B; H360F CLP: Resp. Sens. 1; H334 CLP: Skin Sens. 1; H317 CLP: Aquatic Chronic 4; H413	61,7 – 63,6 %-b.w.
2	Chromium powder EC-No. 231-157-5 CAS-No. 7440-47-3	CLP: Not classified	24,6 – 27,8 %-b.w.
3	Tungsten powder EC-No. 231-143-9 CAS-No. 7440-33-7	CLP: Not classified Others: Flam. Sol. 2; H228	5,5 – 8,5 %-b.w.

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4	Molybdenum		
	EC-No. 231-107-2	Not classified	≤ 5%-b.w.
	CAS-No. 7439-98-7		
5	Silicon		
	EC-No. 231-130-8	Not classified	1,1 – 1,6 %-b.w.
	CAS-No. 7440-21-3		
6	Iron powder		
	EC-No. 231-096-4	CLP: Not classified	< 1%-b.w.
	CAS-No. 7439-89-6	Others: Self-heat. 1; H251	
7	Manganese powder < 45 µm, > 25 %		
	EC-No. 231-105-1	CLP: Not classified	< 1 %-b.w.
	CAS-No. 7439-96-5	Others: Aquatic Chronic 2; H411	
8	Niobium, powder		
	EC-No. 231-113-5	CLP Not classified	< 1 %-b.w.
	CAS-No. 7440-03-1	Others: Flam. Sol. 1; H228	
9	Nitrogen		
	EC-No. 231-783-9	Not classified	< 1 %-b.w.
	CAS-No. 7727-37-9		

Full text of H- and EUH-statements: see section 16.

Additional information: The maximum workplace exposure limits are, where necessary, listed in section 8.

Section 4: First aid measures

4.1 First aid measures

- General information: If medical advice is needed, have product container or label at hand.
Take off immediately all contaminated clothing and wash it before reuse.
First aider: Pay attention to self-protection!
- In case of inhalation: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If breathing is irregular or stopped, administer artificial respiration. If victim is at risk of losing consciousness, position and transport on their side. Immediately get medical attention.
- Following skin contact: Immediately clean with water and soap followed by thorough rinsing. In case of skin reactions consult a physician.
- After eye contact: Immediately flush eyes with plenty of flowing water for 10 to 15 minutes holding eyelids apart. Remove contact lenses, if present and easy to do. Continue rinsing. Subsequently consult an ophthalmologist.
- After swallowing: Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person. Do not induce vomiting.
Caution if victim vomits: Risk of aspiration!
When swallowed and vomited immediately, aspiration into the lungs may occur resulting in chemical pneumonia or suffocation. Immediately get medical attention.

4.2 Most important symptoms and effects, both acute and delayed

May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

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SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media:

Product is non-combustible. Extinguishing materials should therefore be selected according to surroundings. Foam, extinguishing powder, carbon dioxide.

Extinguishing media which must not be used for safety reasons:

Water

5.2 Special hazards arising from the substances or mixtures

May form dangerous gases and vapours in case of fire.

Furthermore, there may develop: Metal oxide smoke, toxic

5.3 Advice for firefighters

Special protective equipment for firefighters:

Wear a self-contained breathing apparatus and chemical protective clothing.

Additional information: Hazchem-Code: -

Do not allow fire water to penetrate into surface or ground water.

Fire residuals and contaminated extinguishing water must be disposed of in accordance with the regulations of the local authorities.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Avoid exposure. Avoid breathing dust

Provide adequate ventilation. Wear appropriate protective equipment. Keep unprotected people away. Evacuate area.

If possible, eliminate leakage. Take off immediately all contaminated clothing and wash it before reuse.

6.2 Environmental precautions

Do not allow to enter into ground-water, surface water or drains.

If necessary, notify appropriate authorities.

6.3 Methods and material for containment and cleaning up

Take up mechanically, placing in appropriate containers for disposal. Avoid dust formation.

Additional information: During processing, dust may form explosive mixture in air.

6.4 Reference to other sections

Refer additionally to section 8 and 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling

Obtain special instructions before use.

Do not get in eyes, on skin, or on clothing. Provide adequate ventilation, and local exhaust as needed. Avoid breathing dust. Wear appropriate protective equipment. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.

Take off immediately all contaminated clothing and wash it before reuse. Work place should be equipped with a shower and an eye rinsing apparatus.

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7.2 Conditions for safe storage, including any incompatibilities

Requirements for storerooms and containers:

Keep container tightly closed and in a well-ventilated place.
Keep container dry. Keep only in the original container.
Protect from heat and direct sunlight.
Store containers in upright position.

Hints on joint storage:

Keep away from food, drink and animal feedingstuffs.
Do not store together with combustible or self-igniting materials or any highly flammable solids.
Do not store together with acids/alkalies and oxidation agents.

7.3 Special end use(s)

General use: Manufacturing of dental prostheses in dental laboratories using the SLM-process.

SECTION 8: Exposure controls / personal protection

8.1 Control parameters

Occupational exposure limit values:

CAS No.	Designation	Type	Limit value
7440-48-4	Cobalt	Great Britain: WEL-TWA Ireland: 8 hours	0.1 mg/m ³ 0.02 mg/m ³
7440-47-3	Chromium Lumps oder Pulver	Europe: IOELV: TWA Great Britain: WEL-TWA Ireland: 8 hours	2 mg/m ³ (metal and compounds, inorganic, insoluble) 0.5 mg/m ³ 2 mg/m ³
7440-33-7	Tungsten powder	Great Britain: WEL-STEL Great Britain: WEL-STEL Great Britain: WEL-TWA Ireland: 15 minutes Ireland: 15 minutes Ireland: 8 hours Ireland: 8 hours	10 mg/m ³ compounds, insoluble 3 mg/m ³ compounds, soluble 1 mg/m ³ compounds, soluble 5 mg/m ³ compounds, insoluble 10 mg/m ³ insoluble 3 mg/m ³ (soluble) 1 mg/m ³ (soluble) 5 mg/m ³ insoluble
7439-98-7	Molybdenum	Great Britain: WEL-STEL Great Britain: WEL-STEL Great Britain: WEL-TWA Great Britain: WEL-TWA Ireland: 8 hours Ireland: 8 hours Ireland: 8 hours	10 mg/m ³ (compounds soluble, Molybdenum) 20 mg/m ³ (compounds insoluble, Molybdenum) 10 mg/m ³ (compounds insoluble, Molybdenum) 5 mg/m ³ (compounds soluble, Molybdenum) 0.5 mg/m ³ (compounds, soluble, respirable fraction) 10 mg/m ³ compounds, insoluble; inhalable fraction 3 mg/m ³ compounds, insoluble; respirable fraction
7440-21-3	Silicon	Great Britain: WEL-TWA Great Britain: WEL-TWA Ireland: 8 hours Ireland: 8 hours	10 mg/m ³ (inhalable fraction) 4 mg/m ³ (respirable fraction) 10 mg/m ³ (inhalable fraction) 4 mg/m ³ (respirable fraction)

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7439-96-5	Manganese Powder < 45 µm, > 25 %	Europe: IOELV: TWA	0.05 mg/m ³ (respirable fraction)
		Europe: IOELV: TWA	0.2 mg/m ³ (inhalable fraction)
		Great Britain: WEL-TWA	0.05 mg/m ³
			(Manganese and compounds, inorganic, respirable fraction)
		Great Britain: WEL-TWA	0.2 mg/m ³
			(Manganese and compounds, inorganic, inhalable fraction)
		Ireland: 15 minutes	3 mg/m ³
			(Manganese, Smoke, inhalable fraction)
		Ireland: 8 hours	0.05 mg/m ³ (respirable fraction)
		Ireland: 8 hours	0.2 mg/m ³ (Manganese and compounds)
		Ireland: 8 hours	0.2 mg/m ³
			(Manganese, Smoke, inhalable fraction)

8.2 Exposure controls

Provide for good ventilation or exhaust system or work with completely self-contained equipment.

Personal protection equipment

Respiratory protection:

In case of inadequate ventilation wear respiratory protection. Respiratory protection must be worn whenever the WEL levels have been exceeded.

In case of dust formation: Particulates filter P3 according to EN 143.

Eye protection:

Tightly sealed goggles according to EN 166.

Hand protection:

Protective gloves according to EN 374.

Observe glove manufacturer's instructions concerning penetrability and breakthrough time.

Body protection:

Wear dust-resistant protective clothing.

General protection and hygiene measures:

Obtain special instructions before use. Avoid breathing dust. Do not get in eyes, on skin, or on clothing.

Take off immediately all contaminated clothing and wash it before reuse. Contaminated work clothing should not be allowed out of the workplace.

Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.

Work place should be equipped with a shower and an eye rinsing apparatus.

Environmental exposure controls

See section 6.2 Environmental precautions.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form / Colour/ Odour	-	Physical state at 20 °C and 101.3 kPa: solid, powder/ grey/ odourless
pH	-	Not applicable
Melting point / freezing point	-	1200 - 1400 °C
		The various products have different melting intervals within the indicated melting range
Initial boiling point / boiling range	-	No data available
Flash point/flash point range	-	Not applicable
Evaporation rate	-	No data available

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Flammability	-	This product is non-flammable.
Explosion limits	-	No data available
Vapour pressure	-	No data available
Vapour density	-	No data available
Density	-	at 20 °C: 8 - 9 g/cm ³
Solubility in water	-	insoluble
Partition coefficient: n-octanol/water	-	No data available
Auto-ignition temperature	-	No data available
Decomposition temperature	-	No data available
Viscosity, kinematic	-	No data available
Explosive properties	-	During processing, dust may form explosive mixture in air.
Oxidizing characteristics	-	No data available

9.2 Other Information

No data available.

SECTION 10: Stability and reactivity

10.1 Reactivity

Refer to 10.3

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Avoid contact with acids. May result in the release of: Hydrogen.

10.4 Conditions to avoid

Avoid dust formation.

10.5 Incompatible materials

Acids, alkalis, strong oxidizing agents.

10.6 Hazardous decomposition products

No hazardous decomposition products when regulations for storage and handling are observed.
Thermal decomposition: No data available.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Toxicological effects

The statements are derived from the properties of the single components. No toxicological data is available for the product as such.

Acute toxicity (oral): Based on available data, the classification criteria are not met.

ATEmix (calculated): > 5000 mg/kg

Acute toxicity (dermal): Based on available data, the classification criteria are not met.

Acute toxicity (inhalative): Based on available data, the classification criteria are not met.

ATEmix (calculated): > 5 mg/kg

Skin corrosion/irritation: Lack of data.

Serious eye damage/irritation: Lack of data.

Sensitisation to the respiratory tract: Resp. Sens. 1; H334 = May cause allergy or asthma symptoms or breathing difficulties if inhaled.

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Skin sensitisation: Skin Sens. 1; H317 = May cause an allergic skin reaction.
Germ cell mutagenicity/Genotoxicity: Muta. 2; H341 = Suspected of causing genetic defects.
Carcinogenicity: Carc. 1B; H350 = May cause cancer.
Reproductive toxicity: Repr. 1A; H360F = May damage fertility.
Effects on or via lactation: Lack of data.
Specific target organ toxicity (single exposure): Lack of data.
Specific target organ toxicity (repeated exposure): Lack of data.
Aspiration hazard: Lack of data.

Other information: Information about Cobalt

LD50 Rat, oral: 6.171 mg/kg

Symptoms

Mechanical processing can produce particles and dust. Dust contact with the eyes can lead to mechanical irritation. Inhalation of dust may cause irritation of the respiratory system.

SECTION 12: Ecological information

12.1 Toxicity

Aquatic Toxicity

May cause long lasting harmful effects to aquatic life.

Information about Cobalt:

Algae toxicity: EC50 *Pseudokirchneriella subcapitata* (green algae): 0.27 mg/L/70h

Fish toxicity: LC50 *Leuciscus idus*: >10 mg/L/48h

12.2 Persistence and degradability

No data available.

12.3 Bioaccumulative potential

No data available.

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

The alloys under concern are not known to be persistent, bioaccumulating nor toxic.

12.6 Other adverse effects

Do not allow to enter into ground-water, surface water or drains.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste key number: 06 04 05* = wastes containing other heavy metals

* = Evidence for disposal must be provided.

Recommendation: Dispose of waste according to applicable legislation.
Do not dispose of with household waste.

Packages

Recommendation: Dispose of waste according to applicable legislation.
Handle contaminated packages in the same way as the substance itself.

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SECTION 14: Transport information

14.1 UN number

ADR/RID, ADN, IMDG, IATA-DGR:
Not applicable.

14.2 UN proper shipping name

ADR/RID, ADN, IMDG, IATA-DGR:
Not restricted.

14.3 Transport hazard class(es)

ADR/RID, ADN, IMDG, IATA-DGR:
Not applicable.

14.4 Packing group

ADR/RID, ADN, IMDG, IATA-DGR:
Not applicable.

14.5 Environmental hazards

Marine pollutant: no

14.6 Special precautions for user

No dangerous good in sense of these transport regulations.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

No data available.

SECTION 15: Regulatory information

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

National regulations - Great Britain

Hazchem-Code:

No data available

National regulations - EC member states

Further regulations, limitations and legal requirements:

Use restriction according to REACH annex XVII, no.: 28, 29, 30

Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances [Seveso-III-Directive]: H1, E1.

15.2 Chemical Safety Assessment: For this mixture a chemical safety assessment is not required.

SECTION 16: Other information

Further information

Wording of the H-phrases under paragraph 2 and 3:

H228 = Flammable solid.

H317 = May cause an allergic skin reaction.

H334 = May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H341 = Suspected of causing genetic defects.

H350 = May cause cancer.

H360F = May damage fertility.

H411 = Toxic to aquatic life with long lasting effects.

H413 = May cause long lasting harmful effects to aquatic life.

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Abbreviations and acronyms:

ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
OEL: Occupational Exposure Limit Value
AS/NZS: Australian Standards/New Zealand Standards
CAS: Chemical Abstracts Service
CFR: Code of Federal Regulations
CLP: Classification, Labelling and Packaging
DMEL: Derived minimal effect level
DNEL: Derived no-effect level
EC50: Effective Concentration 50%
EC: European Community
EN: European Standard
EU: European Union
IATA: International Air Transport Association
IBC Code: International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
IMDG Code: International Maritime Dangerous Goods Code
LC50: Median lethal concentration
LD50: Lethal dose 50%
MARPOL: Maritime Pollution: The International Convention for the Prevention of Pollution from Ships
OSHA: Occupational Safety and Health Administration
PBT: Persistent, bioaccumulative and toxic
PNEC: Predicted no-effect concentration
REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals
RID: Regulations Concerning the International Carriage of Dangerous Goods by Rail
TLV: Threshold Limit Value
vPvB: Very persistent and very bioaccumulative
WEL: Workplace Exposure Limit

Date of first version: 25.08.2020

Department issuing data sheet

Contact person: see section 1: Department responsible for information

The information in this data sheet has been established to our best knowledge and was up-to-date at time of revision. It does not represent a guarantee for the properties of the product described in terms of the legal warranty regulations.