en

Mediloy S-Co

Co63.9Cr24.7W5.4Mo5.0Si1.0 [%]

CE 0197

Instructions for use

Dental Co-based metal-ceramic alloy, Type 5
Mediloy S-Co complies with ISO 22674 and ISO 9693-1.
REF 50551 – 5 kg

Alloy characteristics

According to ISO 22674 free of nickel, cadmium, beryllium and lead		
Type (accord. to ISO 22674)		5
Solidus, liquidus temperature	°C	1380, 1420
Density	g/cm³	8.6
Young's modulus	GPa	215/180*
Proof strength ($R_{p\,0,2}$)	MPa	1090/770*
Ultimate strength (R_m)	MPa	1315/1220*
Elongation after fracture (A_5)	%	4/5*
Vickers hardness (HV10)		470/430*
BEGO color code		8 (white)
Coefficient of thermal expansion (CTE) 25–500 °C, 10^{-6} K^{-1}		14.3
*stress relieving 800 °C/simulated ceramic firings		
Veneering ceramic	Ceramic with suitable CTE, e. g.: VITA VMK Master	
Oxidation firing	not recommended, but if control firing is requested: 5 min at 900 °C/preferably with vacuum	
Highest recommended firing temperature	980 °C	
Heating rate	recommended max. 55 °C/min	
Flux	e. g. Minoxyd (REF 52530)	
Brazing material before firing:	Wirobond-Lot (REF 52622)	
Brazing material after firing:	–	
Laser wire:	Wiroweld (REF 50003, 50005)	

Intended Use: Mediloy S-Co is indicated for the fabrication of dental restorations, implant prosthetics and orthodontic appliances by the selective laser melting (SLM) process.

Indication: Mediloy S-Co is a cobalt-based dental alloy for SLM process. It is suitable for the fabrication of dental restorations (e.g. crowns, bridges, metal-ceramic crowns and bridges, partial dentures). Furthermore, it is suitable for implant prosthetics (e.g. abutments, bars, secondary bar structures, screw-retained bridges) as well as orthodontic appliances (e.g. orthodontic bands, retainers, space maintainers). Mediloy S-Co is available as powder for SLM process.

Contraindications: Brackets, tubes, archwires and attachments for orthodontic appliances. Further, unwanted biological reactions such as allergies to contents of the alloy or electrochemically based reactions may very rarely occur. In case of known incompatibilities and allergies to contents of the metallic material it should not be used.

Warnings: Metal dust is harmful to your health. Avoid dust formation! When opening the package, transferring the powder or grinding and blasting dental restorations be cautious and use suitable air extraction system / ventilation at the workplace and breathing mask type FFP3-EN149, safety glasses with side shields (DIN EN 166), safety gloves (butyl rubber or nitrile rubber, category III, EN 374) and ESD certified safety shoes. In case of eye contact rinse with plenty of water and in case of skin contact wash off with soap and water. If irritation persists, consult a physician/specialist.

Clean up spillage mechanically, use damp cloth (water or isopropanol) and treat waste in accordance with local and national regulations.

Metal powder is inflammable. Remove all sources of ignition. Suitable extinguishing media: Special powder against metal fire, sand.

Take note of safety data sheet!

Precautions: In case of occlusal or approximal contact with a different alloy electrochemically based reactions may very rarely occur. Safety and effectiveness in treatment of children or treatment of pregnant or nursing woman have not been established. Mediloy S-Co may influence negatively the interpretation of MRI investigations.

Adverse reactions: No adverse reactions are known. Nevertheless, the rare case of occurrence of individual reactions against single components of Mediloy S-Co can never be excluded completely. In this case, the application of Mediloy S-Co should not be continued.

Prescription device: Caution: US Federal law restricts this device to sale by or on the order of a licensed dentist.

Digital wax up: Use appropriate CAD software and follow the dental design rules. Minimum metal thickness (after grinding) 0.3 mm, implant prosthetics with screw channels 0.5 mm, orthodontic bands 0.7 mm, arches 1.5 mm. Avoid sharp edges and corners. Framework should be anatomic reduced. Connectors should be modeled as strong and high as possible (height: min. 3.5 mm, width: min. 2.5 mm).

Manufacturing steps in production center

Storage conditions: Dry in tightly closed containers.

SLM process: When opening the package, transferring the powder or filling the powder into the SLM equipment avoid dust formation! Use SLM equipment with suitable laser (e. g. Ytterbium Fiber Laser or Nd:YAG Laser (wavelength approx. 1060 – 1100 nm)) with following laser settings: Layer height of powder 0.03 mm, laser power 195 W, scanning velocity 1200 mm/s, and hatch spacing 0.09 mm with laser beam width 0.1 mm.

In case of application of not-melted powder the powder should be sieved using 63 µm ultrasonic sieve or 80 µm powder sieve.

Stress relieving: The removable part of the production platform with the fabricated objects is given into a suitable furnace at 650 °C. Within 12 min the temperature is increased to 800 °C and hold for 15 min. Then the temperature is cooled down within 15 min to 550 °C. The platform is removed at 550 °C (or lower) for further processing.

Removal of restorations from platform: Avoid dust formation! After stress relieving and cooling down of the platform, remove the restorations using e. g. a band saw, rotary cutter or pliers. Remove the remains of the supports using pliers.

No reuse of laser sintered material: Do not reuse items produced by selective laser melting (e. g. bridgework or bar) for the re-fabrication of dental restorations (e. g. by casting).

Grinding: Use tungsten carbid burs.

Caution: Do not rework abutment interfaces!

Polishing: To ease polishing blasting with Perlablast® micro (REF 46092, lead free soda glas) may be suitable. Afterwards polish with rubber polisher and brushes with suitable polishing paste. Partial dentures: Electropolishing (Eltropol polishing unit, Wirolyt polishing fluid). Clean surface thoroughly by steam cleaning or boiling in aqua dest.

Ceramic veneering: For abutments and implant-supported, screw-retained bridges, ceramic firings must not be carried out! Use veneering ceramics with suitable CTE (ISO 9693-1). Follow instructions of use of ceramic manufacturers. Before ceramic firings the framework must be blasted (250 µm/3-4 bar; e. g. with Korox 250, REF 46014). Where applicable the oxides after ceramic firings must be blasted (250 µm/3-4 bar; e. g. with Korox 250, REF 46014). Clean surface thoroughly by steam cleaning or boiling in aqua dest. Do not touch surfaces afterwards with hands. Use artery clamps or similar devices.

Support the frameworks adequately during firing cycles.

Acrylic veneering: For veneering with acrylic material follow the recommendations of the manufacturers

Soldering/brazing: Objects with implant interfaces may not be soldered! Fixate the parts with soldering investment material (e. g. Bellatherm® REF 51105). The prepared gab shall not exceed 0.2 mm with parallel walls. Use a suitable BEGO flux. The flux residues and oxides must etched off. Clean surface thoroughly by steam cleaning or boiling in aqua dest.

Laser welding: If applicable use X seam and filler material. Follow manufacturer's instructions for use and hazard notes of the laser welder devices.

Limit of Liability: Except where prohibited by law, BEGO Bremer Goldschlägerei Wilh. Herbst GmbH & Co. KG will not be liable for any loss or damage arising from this product, whether direct, indirect, special, incidental or consequential, regardless of the theory asserted, including warranty, contract, negligence or strict liability.

Warranty: Whether given verbally, in writing or by practical instructions, our recommendations for use are based upon our own experience and trials and can be considered as standard values. Our products are subject to a constant further development. Therefore alterations in construction and composition are reserved.

US Labeling requirements: The device labeling meets the recommendations of FDA applicable guidence documents.

Any serious incident that has occurred in relation to Mediloy S-Co should be reported to BEGO Bremer Goldschlägerei Wilh. Herbst GmbH & Co. KG and the competent authority.

Consult instructions for use

Caution

Use-by-date

LOT
Batch code

NON STERILE
Non-sterile

Rx only
For professional use only

REF
Catalogue number

Manufacturer

BEGO Bremer Goldschlägerei Wilh. Herbst GmbH & Co. KG
Wilhelm-Herbst-Str. 1 · 28359 Bremen, Germany
www.bego.com

BEGO

REF 19259/03 · HdW 6004 · © 2017 by BEGO · 20170615