GB

INSTRUCTION FOR USE
SHERA*ALEOS*

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GA31011A
CE 0123

Non-precious bonding alloy

Indication
Cobalt-chrome bonding alloy which is suitable for laser welding and for the production of fixed restorations in the dental field according to the law for medical products (MPG) class 2a. The alloy is free of nickel, beryllium, cadmium and gallium according to DIN EN ISO 22674:2006. The coefficient of expansion is 14.1 x 10^{-6} K^{-1} (25–600°C).

Modelling
The framework to blend should correspond to the reduced form of the reconstructed crowns. Avoid a disproportionate apply of ceramic, an even porcelain thickness provides tension free connections. A minimum wall thickness of 0.4 mm ensures a safe flow. Contact surfaces intended for solderings are to be created laminarily.

Position of sprues
We recommend the indirect method
- connection to the crown: Ø 2.5 - 3 mm, length 3.0 mm
- crossbar Ø 4 - 5 mm
- casting sprue Ø 3.5 – 4 mm

Investing
Use the investments SHERA*FINA-RAPID* or SHERA*FINA 2000*.

Wax up and preheating
A preheating temperature of 850°C and a holding time of 60 min. is sufficient. In case of a full furnace extend the application time of about approx. 20 min.

Calculating the metal quantity
Rule of thumb: multiply the weight of the wax modellation including sprues with 8.3 (density 8.3 g/cm^3) and add appox. 10 g of casting metal (1 to 2 cubes) for the cone.

Melting crucible
Use only melting crucibles based on ceramic (magnesium-, silicium-, aluminium oxide).

Casting with an induction casting machine / High frequency method
Do not add any melting powder! Heat the metal until it slumps down. Place the mould in the centrifuge and go on heating. The ideal point of casting is when the molten mass is pale from the outside inwardly and the glutinuous shadows of the surface have gone. Do not wait for the oxide layer to tear, as the metal then will overheat. After melting, cast as soon as possible (less volume contraction).

Torch casting
Do not add any melting powder! Melt the alloy with the part of the flame which is low in oxygen. The ideal point of casting is when the molten alloy shows a mushy consistency. Even with this casting method do not wait for the oxide layer to tear, as the metal then will overheat. After melting; cast as soon as possible (less volume contraction). Overheating the molten alloy may lead to blowholes, micro porosities and formation of coarse grain. These casting defects are often the reasons for breaking of a bridge or for fissures in the veneer ceramic.

Devesting
After casting place the mould with the sprue face down. The best alloy structure will be obtained, if the mould is cooled down at room temperature. If required, only cool down the muffle in cold water after having ended the air cooling down time of 15 minutes. Remove rests of investment slightly with a plier for devesting or plier for cutting stones. Do not smash up the cone. Sandblast the investment rests with 250 m / 110 m of highly pure aluminium oxide (purity of 99.7 %) Do not use more than 2 bar for sandblasting the inside of the crowns.

Trimming/Polishing
Ideal results will be obtained with hard metal burs.
Never treat the frameworks with diamonds. Diamonds may smear the frameworks during elaboration and may possibly soil the metal framework in such a way that cracks would occur in the ceramic.
In case of using grinding stone it is absolutely necessary to get information from the producer (only ceramic bonded stones), as even these stones might affect the results in the same negative way as diamonds.

Preparation for ceramic application

Sandblast with highly pure aluminium oxide of 110 m or 250 m (purity of 99.7). Please also follow the instructions of the ceramic manufacturer.

Note: There is no oxidation necessary.
Before firing the ceramic we recommend cleaning the sandblasted framework with ***FRAME CLEANER.*** Put the framework into a closing glass or plastic container with a lid filled with ***FRAME CLEANER*** and clean it in an ultrasonic bath for 5 min. Do not remove the metal structure by hand, but use tweezers. Do not rinse it with water afterwards and never pressure dry the metal, as there are always contaminations in the air. If used regularly, the liquid should be exchanged daily and the container should be washed thoroughly.

Ceramic application

Please note the coefficient of expansion in choosing your ceramic (coefficient of expansion 25-600°C) of 14.1 x 10^{-6} K^{-1}!
Please observe the instructions for use of the ceramic manufacturer regarding cooling down.
We recommend a long time cooling down phase.

Reusing sprues

We recommend using only new material when applying ceramic to the structure. In case of using cones it should be used with a maximum of 1/3 old cone and 2/3 new material.

Technical data

Vickers hardness (HV 10)	285
Density (g/cm³)	8.3
Tensile strength (N/mm²)	845
0.2 yield strength (N/mm²)	620
Elongation limit (A_5 %)	10
Modulus of elasticity (N/mm²)	190,000
Liquidus point (°C)	1,415
Solidus point (°C)	1,390
Casting temperature (°C)	1,475
Coefficient of expansion (25 / 600°C)	14.1 x 10^{-6} K^{-1}

Composition in %

chrome	28.0
cobalt	61.0
molybdenum	-
tungsten	8.5
silicon	1.7
platinum	-
further elements under 1 %	Fe, Mn, C

Adverse effects

Allergies against components of the alloy or electrochemical paraesthesia are rarely possible.

Warranty

SHERA Werkstoff-Technologie GmbH & Co. KG is ISO 9001 certificated and guarantees, due to a throrough quality control system, a flawless quality of its products. All instructions for use are based on the results of our test laboratories. The technical data given can only be guaranteed if the processing is carried out as mentioned. The user is self-responsible for processing of the products. We are not liable for faulty results as SHERA has no influence on the processing. Should any claims arise they are valid for the value of products only.

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