

Instructions for use & technical data

Copran Zr-i



Specifications

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Manufacturer:	White Peaks Dental GmbH & Co. KG Langeheide 9 - 45239 Essen - Germany
Product / Product type:	Copran Zr-i (presintered Y-TZP zirconia-blanks) for the production of dental prostheses
Product form:	Discs / variety of block & disc sizes, partial with holder
Material Type:	ZrO ₂ (Yttriumoxid-stabilised, tetragonal zirconium)
User group:	instructed user to produce zirconium constructions with manual or CAD-CAM milling machines.
CE-mark:	CE 0483
Dental Ceramics:	ZrO ₂ -ceramics (like Vita*, Ivoclar*, DeTrey Dentsply*, Wieland*, Noritaki*, Wohlwend*, Ducera*, Ceramco*, etc.) the * marked names are brands or names of the manufacturers

Composition (mass%)

Zirconia ZrO ₂	88 - 96
Alumina Al ₂ O ₃	0 - 1
Yttrium Oxide Y ₂ O ₃	4 - 6
Other Oxides	<1

Specifications (standard after final sintering)

Density g / cm ³ :	6.06
Flexural strength:	1327 MPa
WAK (25-500°C)	10 10 ⁻⁶ /K
ceramic typ:	typ 2, class 6

Specification:

Copran Zr-i discs are single isostatically pressed, presintered blanks made from biocompatible, tetragonal and polycrystalline zirconiumdioxide. The yttrium oxide stabilizing protects the material against cracks and increases the tensile and compressive strength. The special grain size allocation inside the material and the added aluminium oxide also result in extra strength during milling and subsequently in clinical use.

The outstanding mechanical characteristics, excellent chemical durability and the unbeaten biocompatibility combined with the translucent colour predestine Copran Zr-i as the ideal material for use in dental milling systems.

Copran Zr-i is a medical device class IIa appendix IX 2.1 rule 5 according to the RL 93/42 EWG - marked CE 0483.

Partial the blocks are delivered with connected aluminium holder. Adhesive and aluminium material are medical products or respectively material for the contact with food according to DIN EN 602.

Instructions for use

Framework

The Copran Zr-i blanks are milled into the required frame shape by CAD CAM systems or by manual methods. The milling must add approximately 25% to the original size, as to compensate for shrinkage during the final sintering process. The exact shrinkage rate or expansion factor is given according to the milling system used. Please be sure not to sever the structure completely from the surrounding material for sintering. It is advisable to keep it attached to a bar of surrounding material at least at one side, at least while producing larger constructions. That prevents from distortion during the sintering process. At large bridge constructions the terminal units should be still connected by a bar of material. While using blocks with connected aluminium holder, please make sure to keep a residue of zirconium material of 1,5mm attached to the holder which is disposed of together with the holder after the milling process.

Sintering

Shape the framework if necessary to the required shape and fit. If desired they can be dipped into a colouring solution (Copran Color) for 10 seconds. After treatment with the colouring solution the framework should be placed under an infrared lamp 15-30 minutes to dry out completely. Dry the structure for 30 minutes under an infrared light device.

- ▶ Heating rate: max. 360°C per hour (6°C per minute)
- ▶ Final temperature: 1450°C
- ▶ Holding ramp at final temperature: 2 hours
- ▶ Cooling is done without temperature control in the closed furnace. Never open furnace before it has reached room temperature to avoid thermic shocks.

Finishing

After the final sintering the construction can be fitted to the model by a wet grinding process with diamond-coated burs if necessary. Sinter diamonds, corundum bricks or hard metal milling burs may not be used. Overheating has to be avoided.

Porcelain bonding

All known brands of zirconium frames can be used as long as their thermal expansion coefficient is between 10 and 10,6⁻⁶/K. We generally advise you to:

Clean the framework after final shaping with hot steam.

Cover the zirconium frame completely with a layer of ceramic.

Follow the instruction for the material of your choice.