Instructions for use & technical data
Copran Group
(Copran Zr/ Zri, CopraSupreme, CopraSmile, Hyperion)

Technical data **Date of issuance: 13.05.2019**

Manufacturer: Whitepeaks Dental Solutions GmbH & Co. KG
Langeheide 9 - 45239 Essen – Germany

Product/ Product type: Presintered zirconium dioxide blanks for the production of individual dental restorations

Product form: Discs and blocks of different sizes, colors and translucencies, partly with holder/ frame

Material type: ZrO_2 (yttrium oxide-stabilized, tetragonal zirconium dioxide) / Ceramic type 2, class 5
(exception: CopraSmile products ceramic type 2, class 4)

CE marking: CE 0483 (medical device class IIa)

Circle of users: Instructed users who produce individual dental restorations

Indication/ intended use

Copran Zr/ Zri, CopraSupreme:
Crowns and bridges up to 16 units with max. 2 pontics between 2 crowns in the posterior region, with max. 4 pontics between 2 crowns in the anterior region, veneers, inlays, onlays, primary telescopes, bar constructions

CopraSupreme Hyperion:
Crowns and bridges up to 16 units with max. 2 pontics, veneers, inlays, onlays, primary telescopes, bar constructions

CopraSmile:
Crowns and bridges up to 3 units in the anterior or posterior region, veneers, inlays, onlays, primary telescopes, bar constructions

From Copran materials full anatomic restorations as well as copings and pontics are manufactured, that can be layered with porcelain after sintering.

Contraindication
Do not use in case of proven hypersensitivity against one or several contents.
Do not use in case of insufficient space.

Veneer ceramics
All ZrO_2 ceramics

Instructions for use & technical data
Copran Group
(Copran Zr/ Zri, CopraSupreme, CopraSmile, Hyperion)

Material properties / technical data (standard after final sintering)

	Copran Zr / Zri **Cpran Zr/ Zri UltraBleach**	**Copran Zr / Zri A1 – D4** **Copran Zr/ Zri Light, Medium, Intense**	**CopraSupreme** **CopraSupreme Ultra/Bleach**	**CopraSupreme A1 – D4** **CopraSupreme A Group - D Group** **CopraSupreme Bleach 0M1 – 0M3** **CopraSupreme Symphony A1 – D4**	**CopraSupreme Hyperion A1 – D4**	**CopraSmile** (up to 3 links in the anterior or posterior region)	**CopraSmile A1 – D4** **CopraSmile A Group – D Group** **CopraSmile Bleach 0M1 – 0M3** **CopraSmile Symphony A1 – D4** (up to 3 links in the anterior or posterior region)
ZrO_2	Balance	Balance	Balance	Balance	Balance	Balance	Balance
Y_2O_3	4,95 – 5,35 %	4,95 – 5,35 %	6,93 – 6,97 %	6,413 – 6,914 %	6,413 – 9,155 %	9,32 %	8,358 % – 9,155 %
Al_2O_3	0,15 – 0,35 %	0,15 – 0,35 %	0,04 – 0,06 %	0,038 – 0,062 %	0,038 – 0,062 %	0,049 %	0,046 % – 0,054 %
Fe_2O_3	0 – 0,01 %	0,04 – 0,25 %	0 – 0,01 %	0,010 – 0,151 %	0,010 – 0,151 %	0 – 0,002 %	0,015% – 0,142 %
ER_3O_3	0 %	0 %	—	0 – 0,564 %	0 – 0,626 %	0 %	0 – 0,626 %
CO_3O_4	0 %	0 %	—	0 – 0,008 %	0 – 0,009 %	0 %	0 – 0,009 %
other oxides	0 – 0,06 %	0 – 0,06 %	0 – 0,02 %	0 – 0,020 %	0 – 0,020 %	0 – 0,002 %	0 – 0,004 %
density g/cm³	6,05	6,05	6,07	6,07 – 6,33	6,046 – 6,33	6,046	6,046 – 6,33
flexural strength	≈ 1400 MPa	≈ 1250 - 1400 MPa	≈ 1100 MPa	≈ 1008 – 1100 MPa	≈ 1008 – 1100 MPa	≈ 600 MPa	≈ 600 – 641 MPa
coeffi-cient of thermal expansion (25°C-500°C)	10,5 +/- 0,5 x 10^{-6}/K	10,5 +/- 0,5 x 10^{-6}/K	10,5 +/- 0,5 x 10^{-6}/K	10,5 +/- 0,5 x 10^{-6}/K	10,5 +/- 0,5 x 10-6/K	10,5 +/- 0,5 x 10^{-6}/K	10,5 +/- 0,5 x 10^{-6}/K

Specification
Copran blanks are made from biocompatible, tetragonal and polycrystalline zirconium dioxide. The outstanding mechanical characteristics, excellent chemical durability and the unbeaten biocompatibility combined with the translucent colour predestine Copran as the ideal material for use in dental milling systems. Partial the blocks are delivered with connected holder/ frame.

Instructions for use
The desired restoration is milled from the selected blank:

Copran Zr/ Zri, CopraSupreme, CopraSmile:
The wall thickness must not be less than 0.5mm for anterior teeth and 0.6mm for posterior teeth. The connection between two interconnected anterior crowns must not be less than 8mm². The connection between an anterior crown and a bridge element, two interconnected posterior crowns or two anterior bridge elements must not be less than 9mm². The connection between a posterior crown and a pontic or two posterior pontics must not be less than 12mm². The cross-section of a bar construction must not be less than 15mm².

CopraSupreme Hyperion:
The wall thickness must not be less than 0.8mm for anterior teeth and 1.0mm for posterior teeth. The connection between two interconnected anterior crowns, the connection between an anterior crown and a bridge element, two interconnected posterior crowns or two anterior bridge elements must not be less than 9mm^2. The connection between a posterior crown and a pontic or two posterior pontics must not be less than 12mm^2. The cross-section of a bar construction must not be less than 15mm^2. The margin/ dentin part of the blank is always 50% of the total blank height. The connection therefore must always be placed in the lower half of the blank to insure sufficient bending strength.

These specifications always refer to the dimensions after the final sintering process.

The enlargement or shrinkage factor is indicated on the blank, depending on the milling system used.

The unsintered restorations may still be adjusted. To achieve a perfect surface and maximum translucency, we recommend cleaning the restoration in the "White-Sonic" ultrasonic cleaning device and distilled water. Please use only our recommended ultrasonic cleaning device. Equipment from other companies could be too "strong" and damage the restoration. Swivel the restoration with plastic tweezers in the distilled water of the ultrasound device for 5 to 10 seconds until no "dust cloud" separates from the restoration. Remove excess water from the restoration by blowing off with oil-free air or by dry-dabbing with cellulose or cotton swabs. Dry the restoration under an infrared lamp or using an oven. Make sure it is completely dry. Insure, that the water never reaches boiling temperature during the drying process, as that could cause cracks.

If colouring is desired, this can be done with the corresponding liquids from the Copran Color Group. Please also refer to the instructions for use.

The finished, completely dry restoration, can be sintered now.

Sintering
To achieve maximum transparency of the material, please do not use a speed program.

	Normal Program	**Slow Program**	**Translucency Program**	**Speed Program**
Heating rate	10° per minute to 950°C	5°C per minute to 950°C	5°C per minute to 950°C	50°C per minute to 1100°C
Holding time	none	none	none	none
Heating rate	6°C per minute to 1500°C	2°C per minute to 1500°C	2°C per minute to final temperature	20°C per minute to 1500°C
Holding time	at final temperature 90 minutes	at final temperature 120 minutes	at final temperature 120 minutes	at final temperature 30 minutes
Final temperature	1500°C	1500°C	1500°C - 1630°C	1500°C
Cooling	unregulated in the closed furnace	unregulated in the closed furnace	unregulated in the closed furnace	unregulated in the closed furnace

Post-processing
After final sintering the restoration is adapted to the working model using a wet grinding process with diamond-coated grinding media, if necessary. Sintered diamonds, corundum stones or carbide cutters must not be used. Overheating must be avoided.

Firing the ceramic
All commercially available layering ceramics for zirconium dioxide frameworks can be used. Please observe the working instructions of the respective ceramic manufacturer.
Firing and cooling according to the firing table of the manufacturer of the layering ceramic material used.

Safety instructions
Warning: Dust from Copran zirconia blanks can lead to skin/ eye irritation and damage the lung. Always wear a facemask (filter class FFP2), protective gloves and goggles while processing Copran zirconia blanks. Turn on the extraction system at all times. Avoid contact with mucous membranes.

Storage
Dry Storage. Protect from moisture / humidity.

Disposal
See safety data sheet.

Explanation of the markings on the packaging

Symbol for „item number“

Symbol for „LOT number“

CE 0483 Confirmation: The product complies with the applicable European directives.


Symbol for „number of products in package“


Symbol for „follow the instructions for use“