Instructions for use:
Nacera® Shell/Pearl/Pearl Multi-Shade/Pearl Shaded 16+2

Application

Safety notes

Please read the instructions for use carefully before taking the blank (made of zirconium dioxide) out of its packaging. They contain important information which is essential to ensure both the correct processing and the safety of patients and users.

Blanks made of Nacera® Shell/Pearl/Pearl Multi-Shade/Pearl Shaded 16+2 are manufactured and tested according to highest quality standards. In order to guaranty this level of quality during subsequent processing, the procedures described in the following must be absolutely adhered to.

Warning

When using this product, the dentist must consider possible interaction between this medical product and other products already in place in the patient's mouth.

Danger

The processing of blanks and sintered restorations creates dust which might damage the lungs as well as irritate the eyes and skin. Therefore, processing may only be done provided that the extractor system works correctly as well as wearing safety goggles and a protective mask. If you process this product for use within the framework of the 93/42 EEC guidelines, please forward the above information to the dentist.

Please also note the instructions for use and safety data sheets.

General handling notes

Blanks made of Nacera® Shell/Pearl/Pearl Multi-Shade/Pearl Shaded 16+2 are supplied in a pre-sintered white-fired condition. They have limited stability and strength and a residual porosity. Therefore, these blanks must be handled with care.

The blanks must be stored in their original packaging at temperatures between 50 °F and 120 °F. They must not be subjected to impact or vibration. Contamination must absolutely be avoided. Make sure restorations are only handled with dry and clean hands or gloves, and that they are under no circumstances contaminated with liquids (such as adhesives or marker pens). Coolants will reduce the material's translucency.

Indication

Nacera® Shell/Pearl/Pearl Multi-Shade/Pearl Shaded 16+2 is a zirconium dioxide 3YTZP-A (Shell) or 3YTZP (Pearl) used for manufacturing fixed dental prostheses. The material is suitable for single crowns and/or bridges consisting of up to 16* units. In the posterior region, the span between the abutments must not exceed two units. A cantilever bridge of premolar size is permissible.

For bruxism, the vertical dimension must be observed. In these cases, please consult with the dentist.

Contraindications

In the event that there is an insufficient occlusal clearance and/or vertical prep wall, making the preparation unsuitable for an all-ceramic restoration, an alternative material must be chosen. Inlay bridges, endosseous implants and root posts are other contraindications.

Preparation

Recommendations for the preparation include a marked chamfer or a rounded shoulder.

- Minimum cutting depth at the preparation margin 1 mm
- 1.5 to 2 mm of reduction occlusal/incisal
- Margin radius 0.7 mm
- Preparation angle 6° to 8°

For bridge constructions, observe the parallelism and avoid negative steps. In general, please observe the notes in reference literature.

Notes on construction

Please position the layers of the Nacera® Pearl Multi-Shade disc so that the required color/color intensity is achieved.

Wall thickness Nacera® Shell/Pearl/Pearl Multi-Shade/Pearl Shaded 16+2: Wall thickness of the crowns in the sintered state must not be less than 0.5 mm. Please note that the minimum wall thickness must always be observed even if the restoration may need to be adjusted by the dentist.

*Canada max. 6 units

Rev.: 18-09-2017

Connectors: Connector geometry is of the greatest importance for crack resistance of abutment copings made of zirconium dioxide. Therefore, the cross section of the connectors must be as big as possible and should be a minimum of 9 mm² posterior, 6 mm² anterior or, for cantilever bridges, 12 mm². For static reasons, the height of the connector is especially important. In order to avoid so-called "chipping", the abutment copings should correspond to a reduced, fully anatomic shape of the crowns and bridges to ensure that the applied ceramic has the best possible support.

Veneering: According to manufacturer specifications, the veneering ceramic should be layered at a thickness between 0.7 and 1.5 mm, but < 2 mm. Furthermore, the abutment copings must be designed according to the general guidelines of digital dental technology.

Wall and edge thickness

	individual copings	bridges
Wall thickness	0,4 mm	0,5 mm
Edge thickness	0,2 mm	0,2 mm

Additional dimensions requirements for the anterior region

Number of Pontics	2
Connector cross section	6 mm²

Additional dimensions requirements for the posterior region

Number of Pontics	2
Connector cross section	9 mm²
Max. number of cantilever attachments	max. 1
Connector cross section for cantilever	12 mm²

Coloring the blanks

The restorations can be colored with all qualified and approved coloring liquids according to manufacturer specifications.

Before the final sintering, the restorations which have been treated with liquids must always be dried under red light or in the furnace according to manufacturer specifications.

CAM Milling strategy

Please open your CAM software and, for Nacera® Shell, select "conventional strategy", for Nacera® Pearl/Pearl Multi-Shade/Pearl Shaded 16+2, select "highly translucent strategy".

Processing

Only those machines and tools which are approved for processing pre-sintered blanks made of zirconium dioxide may be used for manufacturing restorations made of Nacera® Shell/Pearl/Pearl Multi-Shade/Pearl Shaded 16+2.

Caution!
For Nacera® Pearl Multi-Shade, the printed side is the occlusal side. Neither coolant nor compressed air should be used during processing.

Please observe the instructions for use of your milling machine as well as the parameters of the CAD/CAM software. Please separate the finished milled parts from the blanks carefully using suitable tools. Then, thin the edges which have been thickened by the machine and remove the tapping. Then, carry out a cut-back if this has not already been done in the CAD.

Visual inspection

Before the milled mounts are processed further, they must be inspected for the following faults:

- Shiny areas on the surface (indicating a worn milling cutter)
- Discoloration (see also the Nacera Clean instructions for use)
- Material spalling (due to the milling strategy and milling cutter)
- Cracks

Faulty restorations must not be processed further.

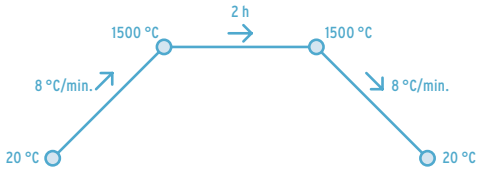
Rev.: 18-09-2017

Application

Final sintering

The final sintering, also called dense sintering, ensures that the milled restoration is given its final properties. During the final sintering, the restoration shrinks by a precisely defined factor. In order to do this, the described procedure must be absolutely adhered to.

Sintering can take place in all common dental sintering furnaces which are approved for the sintering of restorations made of zirconium dioxide. Since zirconium dioxide is known to be a poor thermal conductor, it is recommended that you slowly heat the mounts to the required temperature (see sintering graph) and cool them down equally slowly. Sintering supports should be thinned out or milled as rods.



Further processing
of the finally-sintered restorations

IMPORTANT: The sintered units will only achieve their final color after glaze firing. If possible, the -sintered units should not be milled by hand. However, if this is unavoidable, only water-cooled diamond-fitted tools in correct working order may be used.

Ideally, the interdental connection points should not be polished. In principle, the basal polishing of these points must always be avoided for stability reasons (predetermined breaking points). For abutments, sharp edges should be avoided and rounded, if possible.

Veneering

Wash firing and veneering are done with commonly available veneer ceramics that are approved for zirconium dioxide according to manufacturer specifications.

Individualization

For individualising the restoration, coloring and staining techniques, as well as cut-back and layering techniques, or a combination of both, are suitable.

Grinding

In order to protect the antagonists (abrasion) and for material engineering reasons, ground occlusal contact points and surfaces must be either high-gloss polished after the try-in and/or glaze-fired.

Cementation

The interior surfaces of the restoration should be receive mechanical retention by means of blasting with Al_2O_3 50 µm at a maximum pressure of 22 psi. Before the cement is applied internally, the blasted interior surface should be cleaned with alcohol. State-of-the-art dental technology prefers self-adhesive and adhesive cementation.

Physical properties*

	Pearl	Shell
Material	ZrO_2 Y-TZP	ZrO_2 Y-TZP-A
Color	high translucent	white opaque
WAK/CTE	10,7 10^{-6} K^{-1}	10,8 10^{-6} K^{-1}

*Download data sheet under www.doceram-medical.com

DOCERAM Medical Ceramics GmbH
Hesslingsweg 65 - 67 | D-44309 Dortmund / Germany
info@doceram-medical.com | www.doceram-medical.com

CE 0481

Rev.: 18-09-2017