

For The Most Durable CROWN & BRIDGES



ZIRCON.X[®]

Advanced Ceramics for Crowns and Bridges

*Super Translucency
for full contour all restorations*

Made
in
Germany
-best quality
-high standards



www.presidentdental.de



Instruction of A Zircon.x blocks

Zircon.x zirconia blocks are made by CIP and pre-sintering in low temperature. Although the product has rather strength, because of porosity, please handle carefully. When you receive the product, please check as below.

the general expansion coefficient (shrinkage) is around 1.2400 that is 19%

ST Material Usage and Technical Parameters

1. Usage

Dental zirconia material with ST powder for crown, bridges.

2. Chemical composition and powder characteristic:

| | |
|--------------------------------|----------------------------|
| Y ₂ O ₃ | 5.3wt% |
| Al ₂ O ₃ | 0.25wt% |
| SiO ₂ | ≤ 0.02wt% |
| Fe ₂ O ₃ | ≤ 0.02wt% |
| Na ₂ O | ≤ 0.02wt% |
| Aging properties | monoclinic phase 25% |
| Solubility | ≤ 2000 μg.cm ⁻² |

3. Mechanical Property

| | |
|--------------------|------------------------|
| Sintered Density | ≥ 6.0g/cm ³ |
| Flexural Strength | 1000Mpa |
| Fracture Toughness | 5Mpa ^{0.5} |
| Hardness Hv10 | 1250 |

Application Range

Coping, frame bridges, full contour crown, full contour bridges, implant superstructure, tetracycline pigmentation teeth

Preparation

1. Prepare teeth into suitable bevel and rounded shoulder.
2. The milling thickness of edge of cervical region is at least 1mm.
3. Occlusal and incisal need to grind 1.5mm-2.0mm.
4. Knuckle radius should be 0.7mm.
5. Axial surface aggregation should be 6-8 degree.
6. For bridges, abutment teeth should be parallel to avoid undercut.

Directions

Coping and bridges:

Scanning and designing ➡ milling ➡ cleaning ➡ dyeing ➡ sintering ➡ polishing ➡ porcelain ➡ staining ➡ finishing

Full contour crown, full contour bridges

Scanning and designing ➡ milling ➡ cleaning ➡ dyeing ➡ sintering ➡ polishing ➡ porcelain ➡ staining ➡ finishing

a. Scanning and Designing:

Please scan with high precision scanner to get accurate data then design according to the condition of patients and the requirements of doctors. For all-ceramic restorations, the thickness should not be less than 0.6mm. The geometric construction of zirconia tooth bridge is the key for fracture resistance. Therefore it's better to do a comparatively high connector. The cross-sectional area of connector should be at least 9 m². For posterior teeth, the bridge quantity should not be more than two.

b. Milling:

To get a satisfactory restoration, please ensure work with new milling burs and avoid use cooling liquid. After milling, please check the blocks:

1. Whether there is obvious light district on the surface;
2. Abnormal color;
3. Whether there is a crack;

If appear any one of this, it must be produced again.



c. Cleaning

Polish the connector lightly with hand-piece, and separate the restoration from zirconia block. In order to avoid crack on restoration, the speed should not be over 10000rev/min. Clean up the zirconia powder on the restoration with brush. The cleaned crown should be kept from water, perspiration, oil contamination, dust and the powder falling from milling burs.

d. Dyeing:

Use plastic forceps to place the crown or bridge into the immersion container; the restoration must be completely covered by the coloring liquid. Dip the material for one minute. Then use plastic forceps to remove it, natural drying it until there is no obvious liquid on the surface. Next, start the drying. It is recommended to use infrared drying : please place the restoration under the infrared drying light with the distance of 80-100mm for 30-50min.

e. Sintering:

Distance of 80-100mm for 30-50min. Then crystallize it with sintering furnace.

Notice: change the zirconium bead and crucible regularly and pay attention to the cleaning of the sintering furnace for it may be contaminated by liquid (residual dying liquid or water vapor in the air) or powder. Meanwhile, the heating rod of sintering furnace will be aging which will lead to the falling of metal debris or the producing of metal oxide that can containment the whole furnace. Such kind of condition may cause the opacity sintered restoration and black or white point on the restoration. Therefore the sintering furnace should be cleaned at least once a month by scraping the contaminant inside, and put the abandoned zirconia material in for the empty burning.

f. Grinding & Polishing:

After the coarsely grinding the form and fine grinding the whole body of the restoration, the porcelain process could be operated. **Attention:**

1. The whole process the of coarsely grinding and fine grinding should follow the sequential function of grinding burs.
2. Polish from one side of the teeth to another (in one direction).
3. Pay attention to the fulcrum and speed control during polishing. Avoid always, polishing the same place, as it will lead to partial overheating and cause cracked teeth.

g. Porcelain and Staining :

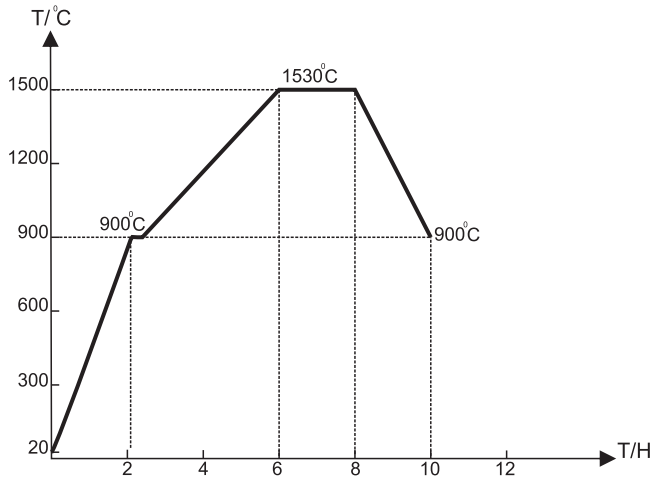
When porcelain the coping, it should be operated according to the instruction of the porcelain manufacturer. In order to avoid cracks, basal structure should be designed into anatomical morphology. When designing basal structure, avoid bite edge to exert direct forcing on the teeth edge. The ideal effect could be achieved just by one-step staining. Choose the stain paste or shade paste you want with the glaze paste and mix it into a creamy consistency according to the tooth shade guide. Before dye, make sure the whole surface of restoration clean. Use stain liquid to wet or clean the brush. And the stain liquid can be used to thin paste if necessary. Dye from neck to incisal surface. The incisal surface can be coated with glaze paste directly or blue stains with glaze paste to achieve high permeability. The color of occlusal surface can be deepened with terracotta and brown stain paste. For restoration requiring only one coat of stain, repeat if necessary.

h. Finishing:

The production of restoration is finished.

Attached list

1. Suggest sintering process after coloring



2. Firing process after staining and glazing (for the bridges , slow down the rate for avoiding the crack of bridge)

| Start temp | dry | Heating rate | Heating temp | Maintain time | Final temp |
|------------|------|--------------|--------------|---------------|------------|
| 600°C | 4min | 50°C /min | 820°C | 2min | 600°C |

Sintering instruction ST:

Single-crown and bridges below 3 units

| | |
|-----------------|------------------|
| Start temp | Room temperature |
| Ramp1 | 20°C/min |
| High temp1 | 900°C |
| Temp Delay | 10 min |
| Ramp2 | 10°C/min |
| High Temp2 | 1530°C |
| Temp Delay | 2H |
| Cooling to Temp | 900°C |
| By Time minimum | 30 min |
| Active cooling | 500°C |

Bridges of 3-6 units

| | |
|-----------------|------------------|
| Start temp | Room temperature |
| Ramp1 | 10°C/min |
| High temp1 | 900°C |
| Temp Delay | 20 min |
| Ramp2 | 5°C/min |
| High Temp2 | 1530°C |
| Temp Delay | 2H |
| Cooling to Temp | 900°C |
| By Time minimum | 50 min |
| Active cooling | 500°C |

Bridges of 6 units

| | |
|-----------------|------------------|
| Start temp | Room temperature |
| Ramp1 | 5°C/min |
| High temp1 | 900°C |
| Temp Delay | 30 min |
| Ramp2 | 3°C/min |
| High Temp2 | 1530°C |
| Temp Delay | 2H |
| Cooling to Temp | 900°C |
| By Time minimum | 50 min |
| Active cooling | 500°C |

LIST OF PRODUCT

- PRD.01.100.ZBX.10 Zircon Block (98x10) ST
- PRD.01.100.ZBX.12 Zircon Block (98x12) ST
- PRD.01.100.ZBX.14 Zircon Block (98x14) ST
- PRD.01.100.ZBX.16 Zircon Block (98x16) ST
- PRD.01.100.ZBX.18 Zircon Block (98x18) ST