



GenesisZr[®] 4Y+ (ST1100) Zirconia Restoration Instructions for Use



GenesisZr[®] 4Y+ (ST1100) Zirconia discs and blocks are made of Zirconium Oxide (Y-TZP ZrO₂).

For Type II, Class 5 dental applications in accordance with ISO 6872, (DIN EN ISO 6872:2015), this material is specially made for manufacturing of permanent and removable dental prosthetics. Applications include: Crowns, conical telescopic copings, veneers, inlays and onlays. After completion of the final sintering, all GenesisZr[®] 4Y+ (ST1100) Zirconia meets the requirements of ISO 6872:2015.

Technical Data

Properties Unit

Bending Strength (biaxial): MPa 1,100 ± 100 Mpa

Coefficient of Thermal Expansion: 10.2 µm/m °C K (25-500°C)

Chemical Composition

Components Percent Mass Fraction ZrO₂ + HfO₂ + Y₂O₃ > 99.0

Chemical Product & Identification

Chemical Family Zirconium Oxide Based Ceramics

Trade Name: GenesisZr[®] 4Y+ (ST1100) Zirconia blank

Hazardous Ingredients

CAS Number 13314-23-4

Zirconia Percent 94-96

(Zirconium Oxide) ACGIH TLV 5 (T) OSHA PEL 5 (T), Units mg/m

CAS Number 1314-36-9

Yttria (Yttrium Oxide) Percent 4-6 ACGIH TLV 2 (T) OSHA PEL N/E, Units mg/m

Health Hazard Data

Routes of Exposure:

X Skin Contact	N/A Skin Absorption	X Eye Contact
X Acute Inhalation	X Chronic Inhalation	X Ingestion

Emergency and First Aid Procedures

Inhalation

If symptoms of pulmonary involvement develop (coughing, wheezing, shortness of breath, etc.) remove from exposure and seek medical attention.

Skin Contact

If irritation occurs, flush with large amounts of water. If irritation persists, seek medical attention.

Eye Contact

If irritation occurs, flush with large amounts of water. If irritation persists, seek medical attention.

Ingestion

If substantial quantities are swallowed, dilute with a large amount of water. Induce vomiting and seek medical attention.

Intended use

Once the design and modeling has been adapted and completed, the product is inserted into the patient's mouth by specialized trained technicians or Doctors. The GenesisZr[®] 4Y+ product is used to model dental prosthesis substituting worn out or defective anatomic parts. The GenesisZr[®] 4Y+ product should not be used to manufacture implants.

Indications for use

GenesisZr[®] 4Y+ (ST1100) Zirconia blanks are indicated for use by dental technicians for the production of full contour and substructures restorations up to a full arch.

Contraindications

When GenesisZr[®] 4Y+ (ST1100) Zirconia blanks are milled, the dental technician should take appropriate safety methods such as face mask and eye protection when removing the finished dental prostheses from the holder to preclude inhaling dust particles upon removal with power tools.

- Insufficient tooth structure reduction.¹
- Insufficient tooth structure for proper adhesion and force distribution.¹
- Insufficient oral hygiene.
- Insufficient interproximal space for sufficient joints in bridges.¹

- Known allergies.¹
- Known incompatibilities to product composition.¹
- Heavy discoloration of prepped tooth structure.¹

¹ as applicable to the finished article installed by the dentist

Design and Milling

Follow instructions for CAD/CAM software to scan and design restorations.

GenesisZr[®] 4Y+ (ST1100) Zirconia should be used in accordance with the design and recommended parameters. Milling systems need to be well calibrated for best results. All systems are not alike and can produce adverse results if the minimum thickness is not followed. For bridges always design auxiliary supports to prevent warping during sintering.

Milling set up for GenesisZr[®] 4Y+ (ST1100) Zirconia Restoration

1. Fix the zirconia block in the specific clamping device.
2. Nest designs and begin the milling process.
3. Remove milled framework from block and pre-trim with diamond burr.
4. Finish with tungsten crosscut burs
5. De-dust frame with air gun
6. Color frame or full contour restoration with dipping liquid.
7. Final-dry frame under infrared lamp for 45 minutes or manufacturer's recommendations.
8. Load furnace
9. Shut Furnace door and select program. (Observe chart of sintering parameters)
10. Remove sintered framework from furnace at room temperature.
11. Check frame on working model for seat and margin fit. Trim with water-cooled air turbine if required.
12. Blast using 120-micron Aluminum Oxide at pressure 4 bar.
13. Clean frame with brush using water. Do not steam-clean.

Sintering ovens vary in their performance. It is extremely important that furnaces be calibrated on a regular basis to achieve optimum results.

- GenesisZr[®] 4Y+ (ST1100) Zirconia is sintered using the same program.
- Place objects to be sintered on beads in sintering tray.
- Space objects in tray to allow for convection heat.
- Fired objects will have a slight luster.

Chart of sintering parameters - final temperature Material Final temp.

GenesisZr[®] 4Y+ (ST1100) Zirconia 1500°C

Heat Rate of furnace:

0-1220°C – (12°C per min to 1220°C) Hold at 1220°C for 45mins

1220°C - 1320°C – (3°C per Min to 1320°C)

1320°C - 1465°C – (12°C per min to 1465°C)

1465°C - 1500°C – (8°C per min to 1500°C) Hold at 1500°C for 150 mins.

Cooling Rate @ 15°C to ambient temperature.

Cementation:

The Dental Technician or Doctor is requested to use a resin reinforced glass type ionomer or a resin-based cement to cement the GenesisZr[®] 4Y+ (ST1100) Zirconia. Please follow manufacturer's instructions.

Advice:

The product must be used only by specifically trained personnel. Should intolerance to the product be suspected, use it only after an allergy-screening test has been performed with issue of medical statement of non-allergy conditions. This instruction manual is state of the art and is provided based on our current levels of knowledge.

The user will be held fully responsible for any operations entailing the use of the product. The manufacturer is not liable for any erroneous results, since he has no influence on any processing procedure. Any claims for damages therefore shall concern exclusively the commercial value of our products. The dental technician has to make sure that the dentist has received all of the necessary information for the correct use of the product.

Storage and Handling:

Keep container dry. Keep at temperatures: < 28°C / < 82°F



GenesisZr[®] 4Y+ (ST1100) Zirconia Restoration Instructions for Use



Rx Only.

Contact information:

United Dental Resources Corporation
70 Towncenter Drive
University Park, IL USA 60484
Office (708) 746-5730

Chart of sintering parameters - final temperature

Material Final temp. GenesisZr™ 4Y Zirconia 1550°C

Heat Rate of furnace:

Ambient - 1220°C – (12°C per min to 1220°C)
Hold at 1220°C for 45 mins.
1220°C - 1320°C – (3°C per Min to 1320°C)
1320°C - 1465°C – (12°C per min to 1465°C)
1465°C - 1550°C – (3°C per min to 1465°C)
1550°C Hold for 150 mins.
Cooling Rate @ 15°C to Ambient Temperature.

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CAUTION: US Federal law restricts the manufactured device to be sold or ordered only by a licensed dentist.

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GenesisZr[®] 4Y+ (ST1100) Zirconia Restoration - IFU – Instructions for use

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N/A Skin Absorption

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X Acute Inhalation

X Chronic Inhalation

X Ingestion

Emergency and First Aid Procedures Inhalation

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