

Zirconia ML

Instructions for Use for DenMat Multilayered Zirconia

Product Description:

DenMat Multilayered Zirconia Discs are made of Zirconium Oxide (Y-TZP ZrO_2). For dental applications in accordance with ISO 6872, (DIN EN ISO 6872), this material is specially made for manufacturing of permanent and removable dental prosthetics. After completion of the final sintering, all DenMat Multilayered Zirconia meets the requirements of ISO 6872, Type II, Class 5. It is necessary to mill the disc with an appropriate enlargement factor to account for the shrinkage that occurs during full sintering. DenMat Zirconia Multilayered (ML) discs can be used with any compatible CAD/CAM machine.

Indications:

The Multilayered Zirconia Disc is indicated for fabrication of anterior and posterior dental restorations using different CAD/CAM or manual machines. All discs are processed through dental laboratories or by dental professionals.

Contraindications:

- Insufficient tooth structure reduction.
- Insufficient tooth structure for proper adhesion and force distribution.
- Insufficient oral hygiene.
- Insufficient interproximal space for sufficient joints in bridges.
- Known allergies.
- Known incompatibilities to product composition.
- Heavy discoloration of prepped tooth structure.

Technical Data:

Coefficient of Thermal Expansion	$10.39 \times 10^{-6} \text{ K}^{-1}$
Flexural Strength	1085 MPa
Vickers Hardness:	>1300 HV1
Chemical Solubility:	<100 $\mu\text{g}/\text{cm}^2$

Chemical Composition

ZrO_2	91.958-92.570%
Y_2O_3	7.250-7.800%
SiO_2	$\leq 0.010\%$
Fe_2O_3	0.017-0.114%
CaO	$\leq 0.007\%$
Na_2O	$\leq 0.004\%$
Mn_2O_3	$\leq 0.003\%$
Er_2O_3	$\leq 0.263\%$

Chemical Product & Identification:

Chemical Family Zirconium Oxide Based Ceramics.

Translucency:

48 %

Shade Selection:

DenMat Zirconia ML discs have 17 shade variations, the classic Vita shades plus a bleach shade.

Disc Shades	A1	A2	A3	A3.5	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D3	D4	OM2
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- 4 available thicknesses: (14 mm, 18 mm and 22 mm and 25 mm)
- DenMat Zirconia ML discs consist of 5 gradated shade layers.

Procedure:

Step 1: CAD/CAM Design: When designing a full contour zirconia restoration, it is important that minimum thickness requirements are met 1.0 mm of occlusal and axial thickness is considered ideal for full contour zirconia restorations.

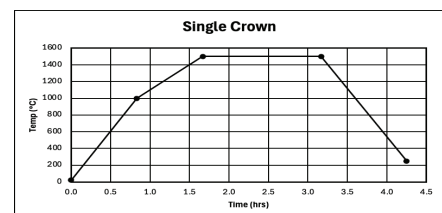
Step 2: Mill: Each DenMat Zirconia ML disc is labeled with its unique EF, (enlargement factor). Please refer to the operating instructions of the corresponding CAD/CAM system for detailed milling instructions and the required inputs.

Step 3: Prep for sintering: It is recommended that all adjustments to zirconia restorations be completed prior to sintering. Remove any and all dust from the restoration, internally and externally.

Step 4: Sintering: The sintering temperature for the zirconia is below.

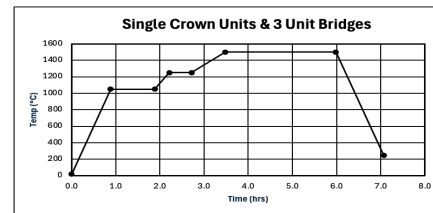
Single Crown

Step	Start Temperature	Ramp Rate	Final Temperature	Hold Time at Final Temperature
1	Room Temp.	20°C/min	1000°C	N/A
2	1000°C	10°C/min	1500°C	90 Minutes
3	1500°C	-20°C/min	250°C	N/A



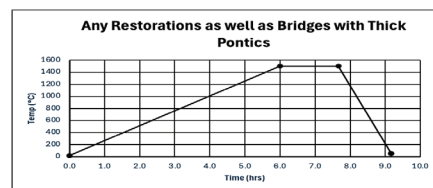
Single Crown Units & 3 Unit Bridges

Step	Start Temperature	Ramp Rate	Final Temperature	Hold Time at Final Temperature
1	Room Temp.	20°C/min	1050°C	60 Minutes
2	1050°C	10°C/min	1250°C	30 Minutes
3	1250°C	5°C/min	250°C	150 Minutes
4	1500°C	-20°C/min	250°C	N/A



Any Restorations as well as Bridges with Thick Pontics

Step	Start Temperature	Ramp Rate	Final Temperature	Hold Time at Final Temperature
1	Room Temp.	4°C/min	1500°C	60 Minutes
2	1500°C	Natural Cooling	Room Temp.	N/A



Step 5: Polish Post-Sintering: If adjustments to the zirconia are necessary, it is recommended to use only grinding and polishing instruments indicated for zirconia. When grinding, use little or no pressure to reduce heat which can cause fractures in the framework.

Step 6: Stain and Glaze: The DenMat Zirconia ML Discs are individually designed to match the indicated VITA® shade after staining and glazing. Some staining and/or shade alterations may be used to match specific prescription requirements. It is recommended to use glaze on the restorations (refer to manufacturer's instructions for application guidelines). Using a porcelain oven, fire the stained and glazed restoration according to the instructions from the manufacturer. Check the quality of the shade, and re-stain if needed. Failure to follow these recommendations may result in an unintended shade. Do not remove the restorations from the oven until they have cooled sufficiently for safe removal.

Note: The restorations will appear to be darker and/or higher in chroma out of the sintering oven. The restorations are designed to match the VITA shade after a stain/glaze heat cycle.

Note: Please refer to the operating instructions for the particular oven used for proper use, placement of the product and calibration. Ensure that the sintering oven used is calibrated according to the particular manufacturer's specifications. Contact your sintering oven manufacturer for further instructions.

Step 7: Polishing: It is very important that the occlusal surface of the full contour DenMat Zirconia ML restoration has a smooth, glazed or polished surface.

Step 8: Deliver Final Restoration.

Cementation:

The Dental Technician or Doctor is requested to use a resin reinforced glass type ionomer or a resin-based cement to cement the Zirconia. Please follow the manufacturer's instructions.

Storage:

Store in a cool, dry place.

Safety Instructions:

Do not inhale grinding dust. Do not get grinding dust into eyes. A dust mask and protective eyewear should be worn when processing zirconia. If symptoms of pulmonary involvement develop (coughing, wheezing, shortness of breath, etc.) remove from exposure and seek medical attention. Improper framework design can cause restoration failure.

Precautionary Statements - Prevention:

⚠ Harmful if inhaled.

Avoid breathing dust, fumes, gas, mist, vapors and spray. Use only outdoors or in a well-ventilated area. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor if you feel unwell. Consult the SDS for further information.

Skin Contact:

Wash with plenty of water. If irritation persists, seek medical attention.

Eye Contact:

Rinse thoroughly with plenty of water, also under the eyelids. If irritation persists, seek medical attention.

Ingestion:

Rinse mouth. If irritation persists, seek medical attention.

Symbols Glossary available at: denmat.com/symbols



www.denmat.com

Consult Electronic Instructions for Use

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