

TIPS FROM OUR READERS

A technique for separating a ceramic implant-supported restoration from a titanium base abutment



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Titanium base abutments or titanium inserts provide a metal implant connection for computer-aided design and computer-aided manufacture (CAD-CAM) fabricated screw-retained implant-supported ceramic restorations.¹ These ceramic superstructures are usually cemented to the titanium base abutment extraorally with definitive resin cements.

In certain clinical situations, modifications to an implant-supported restoration is required after definitive cementation, such as for a color correction or ceramic addition. Additionally, recementation may be needed because of incorrect positioning during the initial cementation. Under these circumstances, separation of the ceramic superstructure from the titanium base abutment is needed.

High temperature has been used to separate metal-ceramic structures or crowns from implant abutments,^{2,3} presumably to disintegrate the resin cement and consequently separate the components.⁴ However, the high temperature leads to oxidization and deterioration of the implant abutments. Additionally, a fast or uneven increase in temperature may damage the ceramic restoration.

This article describes a controlled thermal procedure to safely debond a single or multiple-unit implant-supported ceramic restoration from a titanium base abutment.

PROCEDURE

1. Remove the titanium base abutment screw to avoid it being affected by the thermal treatment.

2. Place the restoration on a firing pad (firing cotton for porcelain) (Fibretray; Bracon).
3. Set the ceramic furnace (Programat P500 G2; Ivoclar Vivadent AG) standby temperature to 100 °C.
4. Place the firing pad with the restoration into the open furnace (Fig. 1).
5. Set a closing time of 12 minutes.
6. Set the furnace to a heating rate of 10 °C per minute until the final temperature of 350 °C without vacuum is reached and a holding time of 30 minutes. This final temperature applies to Multilink Hybrid Abutment cement (Ivoclar Vivadent AG) but may vary slightly (± 50 °C) for other resin cements (total time: 67 minutes).

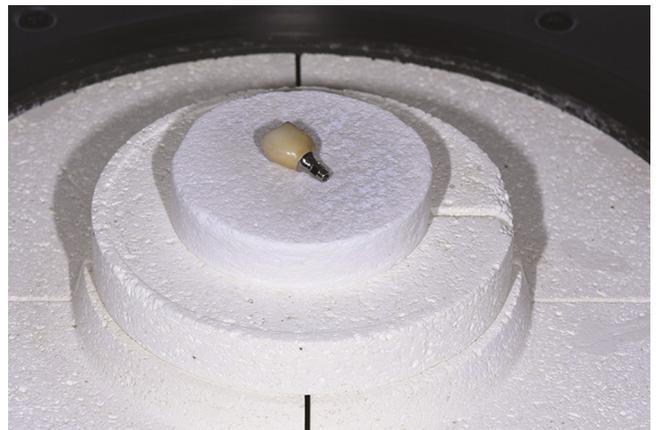


Figure 1. Implant-supported ceramic restoration connected to titanium base on firing pad of ceramic furnace.

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Figure 2. Small hammer hitting forceps securing the restoration and implant analog.

7. Then, open the furnace and remove the restoration from the furnace once it has returned to room temperature. (Slow cooling is not required at this low temperature.)
8. Connect the restoration to the respective analog(s) and tightly secure it with the titanium base abutment screw (without a torque wrench).
9. Hold the analog with forceps and direct a blow to the center of the forceps with a small hammer several times until the restoration comes loose (Fig. 2).
10. Once the restoration comes loose (Fig. 3), clean the restoration and the titanium base abutment with aluminum oxide airborne-particle abrasion at 0.2 MPa (Henry Schein, Inc) and make any necessary modifications before recementing it to the titanium base abutment.



Figure 3. Restoration separated from titanium base abutment.

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