


The Artistic and Conservative Lost Wax Technique

By Nelson Rego, CDT, AAACD



Precise waxing in dentistry has become a lost art that has fallen by the wayside to other modern fabrication techniques. For example, today's strong and esthetic lithium disilicate material (IPS e.max Press) demonstrates a requisite hardness that, for a laboratory, may make mass production of restorations difficult. Necessary adjustments must be made by grinding, which is cumbersome. Therefore, wax-up accuracy and artistry become of paramount importance to the success and predictability of these restorations in order to avoid the need for grinding.

However, the lost wax technique is not new to laboratories and the esthetic and conservative restorative results that can be produced are impressive. What's more, there are many advantages for a dentist when he chooses an IPS e.max Press restoration for cases requiring a thin press veneer or a no-prep veneer.

For instance, due to its hardness, it's a lot less likely that the dentist will break a restoration during cementation. And, incidentally, IPS e.max Press restorations can be conventionally cemented or adhesively bonded. Marginal integrity is enhanced due to the accuracy that results from pressed fitting; this is not always achieved with feldspathic veneers.

For ceramists, the IPS e.max Press material includes four different ingot opacities (High Opacity [HO], Medium Opacity [MO], Lower Translucency [LT], Higher Translucency [HT]) that can be used to address all case needs. What's more, we have the ability with this material to fabricate bridges on anterior teeth as far back as the second bicuspid. This allows us to achieve an exact color match. Overall, the IPS e.max Press lithium disilicate material provides us with a metal-free alternative for beauty, versatility and fit when conservative esthetic restorations are warranted.



Figure 1.
Preoperative retracted view of a patient's teeth. The patient requested a brighter smile, but with minimally prepared restorations.



Figure 2.
The pressed restorations were tried on the die, after which any additional build-up was completed.

Highlighted here is a case in which a 30-year-old female desired a brighter smile, but she was adamant about having minimal dentistry. In other words, she wanted as much of her natural tooth structure conserved as possible (**Figure 1**). Therefore, the collaborative decision was made between the dentist and laboratory ceramist to use a pressable lithium disilicate glass ceramic (IPS e.max Press, Ivoclar Vivadent) that allowed the pressing of veneers to as thin as .3 mm and the use of conservative, less aggressive tooth preparations (**Figures 2 - 6**).



Figure 3.
The restorations were stained and glazed using the IPS e.max Shade Pastes, Essence materials and glazes and fired to impart a natural luster in the restoration.

Figure 4.
Retracted view of the final restorations after cementation. IPS e.max Press restorations can be conventionally cemented or adhesively bonded.



The patient disliked her short, clinical crowns. The dentist conducted a clinical and periodontal examination and took radiographs in order to analyze the esthetics of the patient's natural smile. The dentist determined the patient should have a clinical crown lengthening before any indirect restorative treatment was done.

The patient agreed and her gingival and tooth proportions were brought into ideal symmetry. After a six month healing period, the dental team developed a treatment plan. The case was waxed and the patient agreed to receiving 10 maxillary pressed glass ceramic veneers. The dental team chose to use IPS e.max Press, which needs less tooth preparation than other materials. This was important because the patient's natural dentition was healthy and free of cavities.

The technician used the lost-wax pressing technique to manufacture the veneers. After pouring a model, the technician created a full contour wax up of the veneers, like would be done with a pressed restoration. The wax up was sprued onto the ringer former, invested and burned out. The ingots were pressed into the ring replicating the wax patterns. Then the veneers were divested, layered and characterized with stains and effects to create a natural look.



Figure 5.
Close-up right lateral view of the final IPS e.max Press minimal-preparation veneers.

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Overall, this case demonstrates how laboratory ceramists will realize many advantages from using IPS e.max Press. Again, these include the use of the familiar lost wax technique, money savings in the fabrication of restoration frameworks and efficiency because there is no waiting for milling or an outsourcing center. 📌

About the Author

Nelson Rego owns and operates Smile Designs by Rego, a progressive dental laboratory specializing in ceramics in Santa Fe Springs, Calif. He and his brother, Juan Rego, CDT established the laboratory in 1980. Rego is a Certified Dental Technician who has studied with some of the best dentists and ceramists in dentistry today. He is an accredited member of the American Academy of Cosmetic Dentistry and has written over 50 articles pertaining to dental materials and techniques which have appeared in many of the leading dental journals. He is also an evaluator and speaker for several dental product manufacturers including Ivoclar Vivadent and Axis Dental.



Figure 6.
Close-up left-lateral view of the IPS e.max Press lithium disilicate veneers.



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1. IPS e.max Press demonstrates a requisite hardness that, for a laboratory, may make mass production of restorations _____.
 - a. Easy
 - b. Difficult
 - c. Has no effect
2. Due to the hardness of IPS e.max Press it's a lot more likely that the dentist will break a restoration during cementation.
 - a. True
 - b. False
3. IPS e.max Press restorations can be conventionally cemented and adhesively bonded. This is not the case with feldspathic veneers.
 - a. True
 - b. False
4. IPS e.max Press material includes ____ different ingot opacities.
 - a. 2
 - b. 3
 - c. 4
 - d. 5
5. The ability to fabricate bridges on the anterior teeth as far back as the second bicuspids allows for what?
 - a. Avoid the need for grinding
 - b. Wax-up accuracy
 - c. Less aggressive tooth preparation
 - d. Exact color match
6. In the case presented the use of IPS e.max Press allowed for the patient's veneers to be pressed as thin as...
 - a. .2mm
 - b. .3mm
 - c. .5mm
 - d. None of the above
7. In the case presented the dentist determined that the patient should have a clinical crown lengthening before any indirect restorative treatment was done.
 - a. True
 - b. False
8. The patient in this case received how many maxillary pressed glass ceramic veneers?
 - a. 4
 - b. 6
 - c. 8
 - d. 10
9. The lost-wax pressing technique was used to manufacture the veneers.
 - a. True
 - b. False
10. The final step in this process was to press the ingots onto the ringer former.
 - a. True
 - b. False

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