

TECHNICAL PROFILE

AN INSIDE LOOK FROM THE MANUFACTURER

Advantages of Thermoplastics with Metal Rest Seats

Because of recent technological advancements in the removable partial denture arena, there currently is a virtual “esthetic revolution” taking place for edentulous patients. Although implants are arguably the next best thing to original teeth as far as esthetics and performance, not all patients are good implant candidates, which is why options beyond implants are so valuable. Orange County Cosmetic Dental Laboratory has been at the forefront of this revolution by developing several new esthetic partial denture designs. This article will highlight features of the TCS Flexible thermoplastic material and the partial denture design as well as benefits of a TCS Flexible thermoplastic partial with Vitallium® rest seats compared with the TCS Flexible metal-free design. Insertion and adjustment techniques will also be reviewed as well as how to prepare for a relined and adding a tooth to the TCS Flexible thermoplastic partial.

TCS FLEXIBLE RESIN

The thermoplastic of preference is the TCS Flexible because of its strength, translucency, comfort, and esthetics. An additional advantage of TCS Flexible resin is the perfect degree of flexibility it exhibits, without warping or becoming brittle (Figure 1). TCS Flexible is composed of durable thermoplastic nylon resin with a lifetime guarantee against breakage. The resin can also be relined and repaired. Because it is monomer-free, TCS Flexible is ideal for patients who are



Figure 1 The flexibility of the TCS Flexible with cast rest seats.

allergic to monomer and is a perfect esthetic substitute for a metal partial, which can expose unsightly metal clasps in a patient's smile (Figure 2). The TCS Flexible clasps blend genuinely into gum tissue, leaving a perfectly natural looking smile (Figure 3).

TCS FLEXIBLE WITH VITALLIUM REST SEATS

In my years of experience with partial denture materials and their esthetic qualities, thermoplastics have proven to be an excellent alternative to metal. However, I have found that functionality and comfort can be compromised with metal-free designs (Figure 4). With a removable partial denture, forces are applied and must be transferred to the supporting teeth and tissues in an atraumatic fashion. Metal-free thermoplastics lack metal cast rest seats, which transfer forces down the long axes of the abutment teeth. Not having these rest seats sometimes creates discomfort and sore spots for patients. Most problematic cases are in the mandibular arch. A metal-free thermoplastic on the mandibular arch tends to dig into the patient's gum tissue, creating discomfort. It also tends to place excessive pressure and torque on the abutment tooth by the flexible clasp. The solution to this problem is a thermoplastic with either a metal framework or the metal cast rest seats design. Thermoplastic with a metal framework works extremely well, especially in a mandibular Kennedy Class 1 arch. However, with



Figure 2 A patient's smile with a conventional metal partial.



Figure 3 A patient's smile with a thermoplastic partial.

this type of case, a lingual bar is required, which may cause for some hesitation because of the amount of metal involved. In my opinion, the best option is the TCS thermoplastic partial with Vitallium rest seats (Figure 5). This design is particularly useful because it provides the proper support to the partial denture with minimal metal support and relieves excess pressure and torque on the abutment teeth while at the same time creating maximum comfort and superb esthetics.

INSERTION TECHNIQUES

After receiving the finished thermoplastic partial, it should be examined to ensure that it was properly blocked out. There should be no space between the clasp and the tooth on the master model. Before placing the partial in the patient's mouth, it is recommended that the thermoplastic restoration be submerged in hot water for approximately 1 minute. When the thermoplastic cools down to a tolerable temperature, gently insert it into the patient's mouth. In case of clasp tightness, the clasp can be loosened by submerging that part in hot water for 30 seconds, removing it, and gently bending the clasp out while holding it under cold running tap water. The clasp can also be tightened by following the same procedure, but bending the clasp inward.

ADJUSTMENTS

If the restoration needs reductions, it is recommended to use a green stone bur. Orange County Cosmetic Dental Laboratory provides a green stone bur with every thermoplastic case. A handpiece at a low speed should be used, and then with fast hand motion, the resin should be lightly scraped in forward and backward motions to reduce areas (Figure 6). Because too much pressure may burn or distort the restoration, be sure to not grind in a single spot and keep the bur in motion. If fibers appear during the grinding, they can be removed with a very sharp blade. After any major adjustments, it is advised to use pumice with a rag wheel over the ground surfaces to prevent patient irritation.

REPAIRS AND RELINES

Some dentists have a misconception that thermoplastics cannot be added to or relined. In reality, these are easy laboratory procedures, but cannot be accomplished chairside. To add or replace a tooth to a thermoplastic partial, a pickup impression is necessary (Figure 7). The laboratory will use either a welding technique for small repairs or an injection technique for larger repairs and retentive additions. To perform a relined on a thermoplastic, the laboratory will need a rubber base relined impression and a pickup impression over it. Thermoplastic relines with individual saddles can normally be relined using the injection repair technique, but in the case where an overall relined is indicated, the case may be rebased.



Figure 4 A metal-free TCS Flexible partial.



Figure 5 A TCS Flexible with a Vitallium partial.

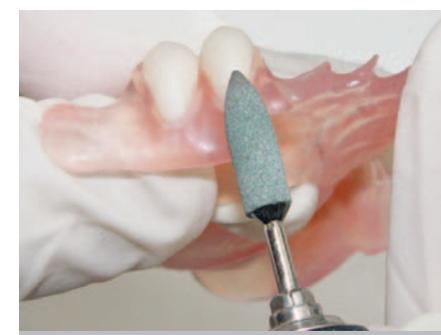


Figure 6 Adjusting a thermoplastic partial.

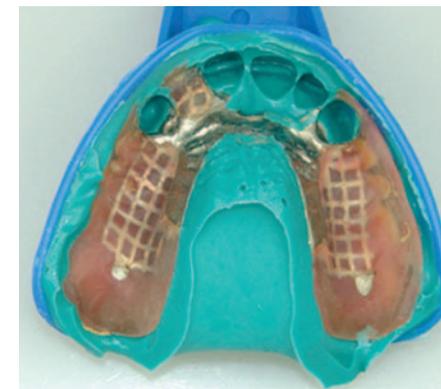


Figure 7 A pickup impression is used to add or replace a tooth to a thermoplastic partial.

CONCLUSION

With so many new options in materials and designs, it is important to prescribe a restoration with excellent performance and accountability. TCS Flexible is a superb partial denture choice because of its strength and esthetics. Include Vitallium cast rest seats to a TCS Flexible to provide more stability and comfort along with uncompromised, elegant esthetics.

This article was written by Steven Rose of Orange County Cosmetic Dental Laboratory.

For More Information

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