

new product review

ESTHET-X



Figure 1



by
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As the globe spins into the year 2000 and revolving changes affect trends in fashion, technology, and culture worldwide, a noticeable change seems to be occurring in the universe of esthetic dentistry. More conservative approaches to restorative solutions based upon adhesive technology are taking place, causing practitioners everywhere to choose “augmentation” over “amputation” of the remaining sound tooth structure whenever indicated.

Composite resins have played a major role in fulfilling that task for decades. However, it was only in the mid-1990s that the dental industry became fully aware of the necessity of having composite resin systems that truly emulated the natural dentition in all of its optical and physical properties, bringing forth systems with a wider shade and opacity range. Thus, a paradigm shift has taken place: restorative dentists must now think of themselves as artist-scientists who need to fully understand the rules and principles of nature and correlate them with the restorative systems available in order to reproduce all the beauty and naturalness of the natural dentition.

One such composite restorative system was launched by Dentsply/Caulk (Milford, DE) at the Greater New York Dental Meeting in November 1999. Esthet-X is a hybrid, visible light-cured, radiopaque composite for direct anterior and posterior restorations, inlays, onlays, and veneers.

COMPOSITION

The organic matrix consists of a Bis-GMA-adduct (adduct of 2,2-Bis[4-(2-hydroxy-3-methacryloyloxypropoxy)-phenyl]propane with hexamethylene diisocyanate), ethoxylated bisphenol-A-dimethacrylate (Bis-EMA,

2,2-Bis[4-(2-methacryloyloxyethoxy)-phenyl]propane) and triethylene glycol dimethacrylate.

The filler is a combination of barium fluoroaluminoborosilicate glass with a mean particle size of less than 1 μm and nanofiller silica (particle size, 0.04 μm).

CONSISTENCY AND HANDLING

Esthet-X is nonsticky and has excellent sculptability, comparable to that of a microfill. In fact, the material is so viscous that it is best to sculpt it with gentle yet firm tapping movements of the contouring instrument rather than spreading the material (which will lead to tearing). It will hold the desired form without slumping even when the dentist is sculpting slender increments such as those used to recreate mamelon tips (Fig 4). Further anatomical refinement with the use of artist's brushes will be more properly achieved after each increment has been contoured to its final desired morphology.

STRENGTH AND WEAR RESISTANCE

To date, there are manufacturers' reports of four clinical studies presently underway. In this author's limited experience utilizing Esthet-X, it seems to perform adequately and is comparable to the leading hybrid systems. Additional independent studies are needed to provide data on wear resistance, volumetric shrinkage, and fracture toughness.

FINISHING AND POLISHING

Esthet-X will require a somewhat more elaborate polishing protocol in order to achieve a high shine. The use of rotary rubber finishing and polishing instruments, followed by the applica-



Figure 2: High-chroma opaque shades are used to reproduce dentin of saturated hue at the cervical one third.



Figure 3: The opaque shades create a highly reflective barrier preventing excessive light "show-through."



Figure 4: The highly sculptable nature of the material favors mamelon build-up without slumping.



Figure 5: The enamel shades are very life-like and lend a beautiful opalescent effect to the incisal edge.



Figure 6: Enamel shades of different hues can be combined for aesthetic enhancement.

tion of diamond and aluminum oxide pastes in felt disks/wheels, will bring the composite to a surface gloss that is adequate but not quite microfill-like.

SHADES

Esthet-X is available in opaque dentin shades (referred to as “opaque” by the manufacturer), regular body shades, and translucent enamel shades (Table). Additional shades for esthetically demanding applications

are available beyond the traditional Vita System. The coordination of these opacities using an incremental layering technique allows the replication of the optical and polychromatic characteristics of the natural dentition very closely. The opaque dentin shades (70–77% opacity) provide optimal opacity to block shine-through and achieve proper color value. The regular body shades (55–65% opacity) generate the main hue and chroma variation of the restoration. The translu-

cent enamel shades (43–48% opacity) are life-like and can be used both intrinsically and extrinsically to recreate translucent effects. These enamel shades are particularly important for attaining incisal translucency, polychromy, and opalescent effects (shades tested: CE and YE). A blue translucent enamel shade would be a nice addition to the system to be used in young teeth. The WO, W-E, W, and XL shades should be useful for bleached teeth.

Included in the introductory system is a blended shade guide that was created to simulate the result of layering specific shades by mixing layered shades and applying various thicknesses to allow customized shade adjustments. This author did not check on the effectiveness of the shade guide because it had not been available during the product evaluation.

PACKAGING

Esthet-X is available in preloaded tips (Compules) and 3-g syringes. The preloaded tips are gray in color with different cap colors. Even though some of the different shades may bear the same cap color; each Compule has the shade designation imprinted on it, along with the batch number and expiration date (3 years of shelf life). The shade designation imprint is quite small, making it difficult to read.

The Esthet-X system is also available in two other kits. The contents of all three kits are detailed below.

ESTHET-X COMPULES TIPS INTRODUCTORY SYSTEM

(suggested retail price, \$308.50)

- 11 shades of Esthet-X Restorative
- 55 preloaded Compule tips:
 - Universal, A2, A3, A3.5
(7 tips for each shade)
 - A1, A4, CE, YE, AE, A2-O
(4 tips for each shade)
 - A4-O (3 tips)
- 1 Esthet-X Tru-Match Shade Guide
- 1 Esthet-X Technique Guide
- 1 bottle of Prime & Bond NT
- 10 Enhance Finishing Discs
- 1 syringe of Prisma Gloss Fine Polishing Paste
- 1 syringe of Prisma Gloss Extra Fine Polishing Paste
- 1 syringe of Caulk 34% Tooth Conditioner Gel
- 1 Enhance Metal Mandrel
- 25 Enhance Polishing Cups (foam)
- 1 Compules Tips Gun
- Accessories

ESTHET-X COMPULES TIPS COMPLETE SYSTEM

(suggested retail price, \$483.50)

- 31 shades of Esthet-X Restorative
- 115 Compule tips:
 - Universal, A2, A3, A3.5
(7 of each shade)
 - B1, C2 (5 of each shade)
 - W (white), A1, A4, B2, CE, YE, AE, A2-O (4 of each shade)
 - XL, B3, B5, C1, C3, D2, D3, WE, GE, W-O, A4-O
(3 of each shade)
 - C4, C5, B2-O, C1-O, C4-O, D3-O
(2 of each shade)
- 1 Esthet-X Tru-Match Shade Guide
- 1 Esthet-X Technique Guide
- 1 bottle of Prime & Bond NT
- 10 Enhance Finishing Discs
- 1 syringe of Prisma Gloss Fine Polishing Paste



Figure 7: Opaque dentin shades can be used superficially to alternate between high- and low-value areas.



Figure 8: The final hue is usually achieved with regular body shades.

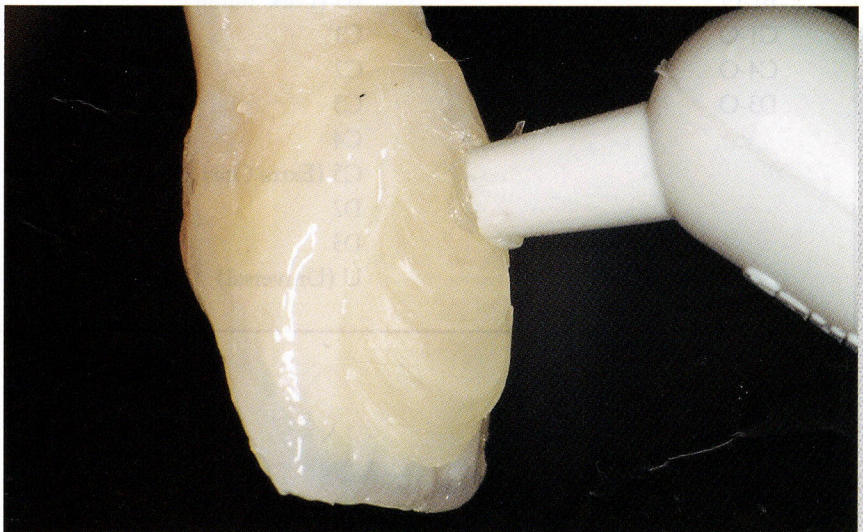


Figure 9: Further enamel effects can be achieved with a final layer of enamel shades in selected areas.



Figure 10: Final appearance of tooth build-up showing a very life-like look.

TABLE
ESTHET-X SHADES.

Translucent Enamel Shades

- CE (Clear Enamel)
- WE (White Enamel)
- YE (Yellow Enamel)
- AE (Amber Enamel)
- GE (Gray Enamel)

Opacious Dentin Shades

- W-O
- A2-O
- A4-O
- B2-O
- C1-O
- C4-O
- D3-O

Regular Body Shades

- W (White)
- XL (Extra Light)
- A1
- A2
- A3
- A3.5
- A4
- B1
- B2
- B3
- B5 (Dark Yellow)
- C1
- C2
- C3
- C4
- C5 (Extra Gray Brown)
- D2
- D3
- U (Universal)

- 1 syringe of Prisma Gloss Extra Fine Polishing Paste
- 1 syringe of Caulk 34% Tooth Conditioner Gel
- 1 Enhance Metal Mandrel
- 25 Enhance Polishing Cups (foam)
- 1 Compules Tips Gun
- Accessories

ESTHET-X SYRINGE INTRODUCTORY SYSTEM

(suggested retail price, \$350.00)

- 7 shades (7 different syringes):
 - A1, A2, A3, A3.5, CE, YE, A2-O
- 1 Esthet-X Tru-Match Shade Guide
- 1 Esthet-X Technique Guide
- 1 bottle of Prime & Bond NT
- 10 Enhance Finishing Discs
- 1 syringe of Prisma Gloss Fine Polishing Paste
- 1 syringe of Prisma Gloss Extra Fine Polishing Paste
- 1 syringe of Caulk 34% Tooth Conditioner Gel
- 1 Enhance Metal Mandrel
- 25 Enhance Polishing Cups (foam)
- 1 Compules Tips Gun
- Accessories

DIRECTIONS

Some helpful clinical hints on shade selection and making mock-ups of the restoration—to begin with a specific end in mind—are provided. Use of a hard-setting calcium hydroxide liner is still being recommended in deep cavities. Etching of enamel margins only is suggested instead of the total-etch technique, but no mention is made of how the clinician can keep the etchant from reaching the dento-enamel junction. *AG*