

## New Applications for New Materials

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**A**s more restorative materials become available to the dental armamentarium, cosmetic dentistry continues to be more exciting every day. The following two cases illustrate the principles of smile design, whitening, and porcelain bonding systems.<sup>17</sup>

### CASE 1

A young woman suffered from fluorosis, a common condition in parts of west Texas. Previously, she had her six front teeth bonded and was pleased with the results. Over time, however, she became less satisfied with her smile. She felt her teeth were too short, the bonding had become darker, and her upper bicuspids and lower teeth did not match the bonded teeth (Fig 1).

Treatment began by whitening all of her dentin, including the bonded teeth, with Nite White Excel carbamide peroxide 16% gel (Discus Dental). In 2 weeks, all of her teeth had whitened, but the white opaque splotches were more apparent (Fig 2). NTI Ultra Fine 10- $\mu$ m diamonds (Axis Dental) were used to remove the surface areas of hypocalcification for a more uniform color (Fig 3).

The six upper-bonded teeth and the first bicuspids were prepared with the NTI diamond depth cutter 834016 (0.3 mm) and 834021 (0.5 mm) burs (Axis Dental). The diamond round end taper burs in coarse and fine, 850016 and 857012 were used for coarse reduction, interproximal slots, and finishing. The veneers were prepared for Empress pressed porcelain (Ivoclar).<sup>18</sup> A stump shade, which simulates the underlying dentin color of ST7, was chosen because of its ability to mask slight discoloration while maintaining a natural translucency.<sup>19</sup>

At the bonding appointment, the teeth were gently abraded with the KCP 1000 (ADT). High pressure (120 psi) and large particles (50  $\mu$ m) of high-purity, medical-grade alpha alumina were used in short bursts at a distance of 4 mm to remove any residual resin and to prepare the teeth for improved bonding. They were then etched and Hema Glu



Fig 1



Fig 2



Fig 3



Fig 4



Fig 5



Fig 6



Fig 7



Fig 8



Fig 9



Fig 10



Fig 11



Fig 12

densitizer with fluoride was applied. The veneers were seated with Ivoclar Variolink white luting cement, according to the manufacturer's instructions. They were cured with the KCP PAC system, Plasma Arc Curing Light.

Finishing of the margins began

with the incisal palatal reduction of overhangs with the NTI LOGIC set 001 of six shapes of fine and superfine diamonds. A Bard Parker No. 12 was useful for hard-to-reach areas. A special disposable composite saw was used to cut the thin layer of resin connecting the teeth. The margins

were finished and polished with rubber points and pastes (Fig 4).<sup>17</sup>

### CASE 2

The second case was a young woman considering a smile makeover. She presented a tooth-sized discrepancy with asymmetrical spacing