

## Interproximal fillings in the aesthetic area using Miris<sup>2</sup>

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**During a dental check-up, a patient, who was going to retire soon, complained about severely discoloured interproximal fillings in her upper anterior teeth. She was bothered by the discolouration for years, but her financial situation did not allow for the costly indirect treatment with porcelain. When considering what I should do as a dentist, I strive for tooth-preserving and minimally invasive treatments whenever possible.**

After a detailed discussion, the patient decided on replacement of the unpleasant fillings with Miris<sup>2</sup> composite. Despite its wide range, this highly aesthetic composite allows for simple conventional filling therapy. As a result of its outstanding shade matching capabilities, a natural appearance can be achieved with this composite even without any special effects for the interproximal fillings. Miris<sup>2</sup> is

recognised by its easy handling as well as its reliable and predictable results.

Because of good oral hygiene, a pre-cleaning was unnecessary. At the start of the treatment, the shade was selected against the moist tooth using various lighting. The supplied shade guide consisting of original Miris<sup>2</sup> composite was used. As a practical aid in deciding upon the shade, it is advisable to refer to categorise the Miris<sup>2</sup> shades into young, adult and elderly patients. The saturation of the dentine shade in the cervical region was selected first by means of the dentine shade guide, since the enamel is thinnest at this point. Because the enamel layer is thinner and more transparent, the teeth for elderly patients usually has a high dentine shade saturation. The manufacturer's proposed dentine shades range between S4 and S7, whereby S4 was chosen in this case. The next step was to determine the

translucency of the enamel with the enamel shade guide; so the shade of the adjacent teeth must also be noted. I usually use „regular“ shades, such as Ivory Regular (IR), in cases where the patient is over the age of 50 years old. To check so that the approximate result can be seen in advance, the selected enamel shell can now be positioned over the dentine core of the shade guide. Using a little water between the two samples, light refraction, which can arise at the junction between them, can be avoided. Once a shade has been selected, there must be no deviation from this decision during the treatment, since the surface of the tooth dries out and its normal shade is altered for a few hours. In consequence, the results at the end of every treatment will appear unsatisfactory.

Removal of the old fillings and preparation of the cavities was performed



Fig. 1: Initial situation



Fig. 2: Initial situation



Fig. 3: Shade selection using the Miris<sup>2</sup> dentine S4 shade guide



Fig. 4: Shade selection using the Miris<sup>2</sup> enamel IR shade guide



Fig. 5: Shade selection using the S4 dentine core and IR enamel shell



Fig. 6: Removal of the old fillings without a rubber dam – for a better view – with the FG 801 016 ML round bur (DIATECH)

using various diamond rotary instruments from the DIATECH set, "Composite Preparation and Finishing Kit selected by Dr. D. Dietschi". This well-planned selection of instruments enables not only the preparation, but also finishing of the composite restorations. To remove the old fillings, I chose the diamond burs with the larger grit size. The finishing diamond burs, which have an average grit size of 45 µm, are effective enough for completing a conservative, subsequent preparation. The enamel margins are then bevelled slightly in order to remove loose enamel prisms. Finally, the prepared teeth are cleaned using fluoride-free paste and a prophyl cup. In order to protect the working area effectively from moisture, a Flexi-Dam non-latex rubber dam was placed for the adhesive restoration. Any remaining impurities can be removed using KaVo abrasive sand with a grit size of 27 µm in the Rondoflex to obtain level cavity surfaces. Thorough rinsing and drying of the working area is extremely important for the subsequent steps. This is followed by enamel etching with Etchant Gel S (35% phosphoric acid) using the total etch technique. After 15 seconds, the

Etching Gel is rinsed off with ample water and the tooth is dried with air, whereby over-drying must be avoided. In my routine practice, A.R.T. Bond has proven to be a reliable primer and bonding system, which works very well with Miris<sup>2</sup> composite. The cavities are coated and conditioned with the mixed primer. After gentle air-drying of the excess, the bond is applied to the corresponding surfaces and carefully air dried again. The transparent polyester matrix, which can now be applied, acts not only as a separation between the interproximal space, but also as a form when shaping the restoration. It is well-fixed in the cervical area with a plastic wedge. Only now is the A.R.T. Bond cured for 20 seconds using the Coltolux LED curing light. The cavity is now prepared and the Miris<sup>2</sup> composite can be used. Due to the delicate shape of the composite tips, the S4 dentine can be applied directly into the relevant site. The dentine can be sculpted comfortably with a composite instrument. The first layer can now be cured for 20 seconds using the Coltolux LED. Even when the degree of shrinkage of today's high-performance composites is minimal, poly-

merisation must take place in layers (maximum layer thickness of 2 mm). Thus, the underside of the applied material sets sufficiently and the residual tooth structure is not exposed to any unnecessary stress due to shrinkage. In this presented case, the build up of the dentine was possible in only two stages, since the fillings involved a small area.

The approximal contact point can also be built up with dentine, so that the enamel layer ultimately covers only the visible labial tooth surface. The Miris<sup>2</sup> IR enamel material is applied in a very thin layer, otherwise a grey tinge can occur. Particularly in the area of the contact points, a broad enamel layer can to undesirable grey-transparent interproximal spaces.

Proceeding in this manner, one approximal tooth surface can be sculpted around the other and completed again. The same shade and layer thickness is used for all fillings. This is the moment when one has to rely entirely on the shade selected at the start, since the fillings appear much too dark at this point.



Fig. 7: FG 862 010 8F (DIATECH)



Fig. 8: FG 379 016 3.5F (DIATECH)



Fig. 9: Prepared teeth



Fig. 10: Cleaning with a fluoride-free cleaning paste and prophyl cup



Fig. 11: Sand-blasting with KaVo abrasive sand, grit size 27µm

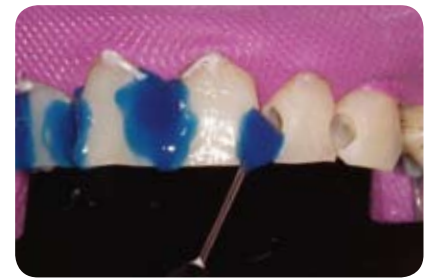


Fig. 12: Etching with Etchant Gel S (35% phosphoric acid)

After the conserving restoration of the interproximal spaces, the excess is removed and the shape is contoured using a Sof-Lex Disc, metal strips, DIATECH diamond burs and the “Composite Polishing Kit”. Since the enamel surface of elderly patients is usually smooth and shiny, it is not necessary to design a pronounced surface texture, such as that found often in younger patients. The result of the 10 fillings is not yet convincing at this time. The patient should be warned of this before the start of the treatment in order to prevent disappointment. Follow-up after a few days shows a completely different and harmonious appearance as the teeth have become rehydrated again. At the end of the treatment, the patient was very satisfied with the results.

In summary, this article should show that the Miris<sup>2</sup> system is ideally suitable for providing quick and economical restorations with an aesthetic quality that is no less than that of ceramic restorations.

### Coltène/Whaledent products used:

- Miris<sup>2</sup>
- Roeko FlexiDam Non Latex
- A.R.T. Bond
- DIATECH, Composite und Polishing Kit

### Contact

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Fig. 13: Etched preparations



Fig. 14: Applying the mixed A+B primer from the A.R.T. Bond system for 30 sec.



Fig. 15: Applying the bond from the A.R.T. Bond system for 20 sec.



Fig. 16: Gentle air-drying of excess bond



Fig. 17: Applying the transparent strips and the wedge



Fig. 18: Applying the first layer of Miris<sup>2</sup> dentine S4



Fig. 19: Applying the Miris<sup>2</sup> enamel IR layer



Fig. 20: Teeth restored using Miris<sup>2</sup>



Fig. 21: Rough finishing of the Miris<sup>2</sup> fillings with discs





Fig. 22: Finishing with FG 862 010 8F (DIATECH)



Fig. 23: Prepolishing with the 2101.1 (DIATECH)



Fig. 24: Finishing with FG 862 010 8F (DIATECH)



Fig. 25: Fine polishing with discs



Fig. 26: High-glance polishing with the Brushine 7002.1 (DIATECH)



Fig. 27: End result immediately after the treatment



Fig. 28: End result after 3 weeks



Fig. 29: Before



Fig. 30: After