

# Why not universal? With a bond for all cases

By Dr Marcelo Balsamo



*“In day-to-day practice, we are confronted with a variety of everyday problems. Futurabond U represents an ideal aid to handling these challenges...”*

One of the most important aspects of restorative dentistry is the material chosen for replacing and reproducing the natural tooth structure. Recent years have seen the most significant developments not just in terms of restorative materials but also, in particular, with regard to adhesive systems which reliably bind the restoration and tooth structure together. As dentists, we require an adhesive which naturally adheres well to the tooth structure in addition to all filling and restoration materials, e.g., composites, metals, ceramics and zirconia which may be used.

There has been a lot of progress and multiple innovations in this field which have served to significantly facilitate clinical work. This progress is particularly evident with respect to the adhesive technique. With the new universal adhesive, Futurabond U (VOCO), an extremely strong bond to a variety of materials (metal, zirconia, aluminium oxide, glass fibre structures, silicate ceramics, composites) can be achieved. Moreover, when using the self-etching adhesive technique and the selective and total-etch techniques, there is still interaction



between the bonding agent and the dentine and enamel structure.

In order to highlight the wide range of applications of Futurabond U, a variety of clinical cases follow in which this adhesive contributed to the success of the treatment.

CASE 1



Figure 1. Condition before treatment.



Figure 2. Selective etching of the enamel margins.



Figure 3. Rubbing in of Futurabond U (VOCO) for 20 seconds.



Figure 4. Restoration with GrandioSO (VOCO).



Figure 5. Polishing with Dimanto (VOCO).



Figure 6. Final result.

Case 1

The first clinical case confronted us with the problem of a 30-year-old female patient who was known to suffer from postoperative sensitivity. This is a problem which usually occurs with extensive cavity preparations in the posterior region and which is a result of many exposed dentinal tubules. Due to etching with phosphoric acid, the total-etch technique could quickly become far too aggressive for this highly sensitive area. The alternative selective-etch method with a self-etching adhesive, on the other hand, can help to significantly reduce postoperative sensitivity in the case of extensive

restorations in the posterior region. This is because the acidic monomers in these new-generation systems are markedly kinder to dentine.

The figures show the restoration to be removed and the prepared cavity. The selective-etching of the enamel margins with phosphoric acid (Vocid, VOCO) for 20 seconds results in a pronounced retention pattern on the enamel which is very difficult to etch. The acid has to be carefully removed and the cavity must be cleaned intensively with spray as it is important to keep the tooth moist for both the next step and the dentine. This is the only way

to ensure formation of the important hybrid layer and to create the conditions for good adhesion together with the adhesive, the dental hard tissue and the exposed collagen fibres. To this end, the adhesive in the *SingleDose* must firstly be activated by simply pressing, it is then rubbed into the dentine and enamel surfaces for 20 seconds, dried with an air stream for 5 seconds and light-cured for 10 seconds.

Once the filling has been placed (GrandioSO, VOCO), it is finished with special rotating finishing and polishing instruments (Dimanto, VOCO). The result is a highly aesthetic restoration (Figures 1-6).

CASE 2

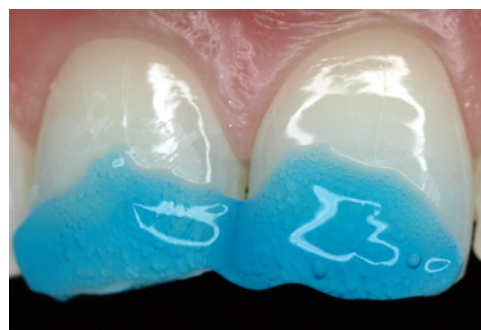


Figure 7. Initial situation with a Class IV restoration.

Figure 8. Etching with Vocacid (VOCO).



Figure 9. Removal of Futurabond U from the SingleDose.

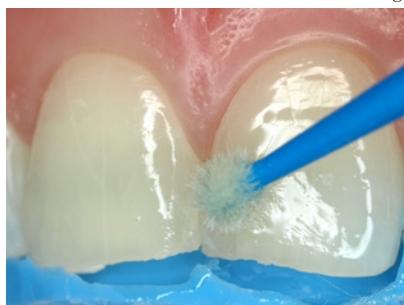


Figure 10. Application of the universal adhesive.



Figure 11. Restoration with GrandioSO.

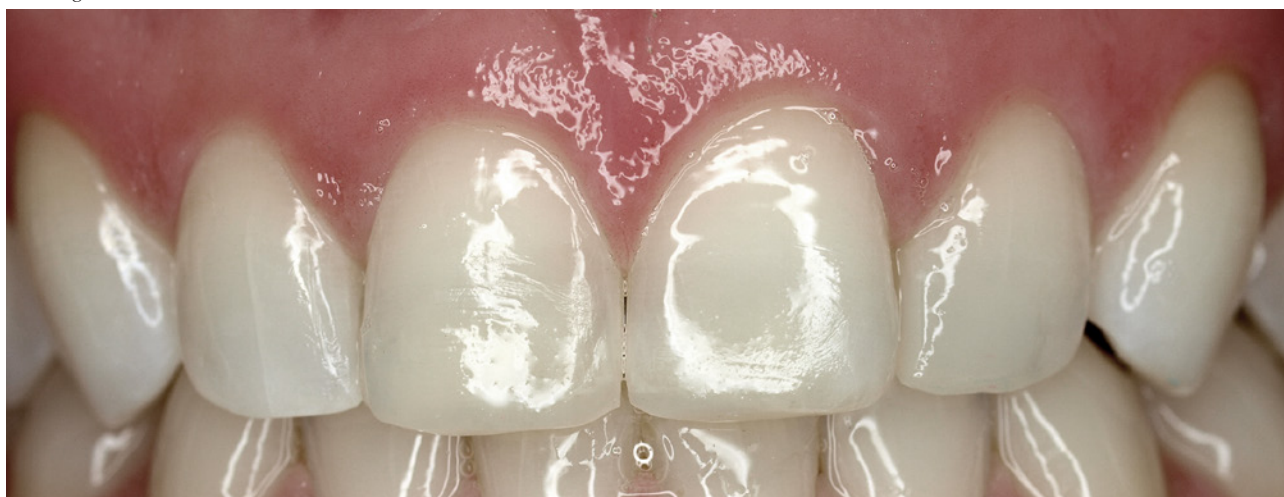


Figure 12. Result after finishing the restoration.

Case 2

The second clinical case offers an example of when the total-etch technique is expedient. An 18-year-old female patient needed an anterior tooth restoration in an area with a large amount of enamel which was subject to high loads and thus required an extremely strong bond between the composite and the dental hard tissue. This is true for Class IV restorations, direct veneers and, for example, also for diastema closures.

That's why the total-etch technique is the method of choice here and was used in this clinical case on the 18-year-old female patient. Chamfers were prepared on teeth 11 and 21. Following this, the etching gel Vocacid was applied for 20 seconds to the enamel and 10 seconds to the dentine. After the etched area had been thoroughly rinsed and dried for the same amount of time as with acid application, Futurabond U is rubbed in for 20

seconds and then gently dried for 5 seconds with an air stream in order to prepare the surfaces for the next restoration step. After light polymerisation (10 seconds), the anterior teeth are designed to create a natural-looking effect with GrandioSO. The interplay of a nanohybrid composite and a latest-generation adhesive system not only leads to an extremely aesthetic but also a highly resilient result (Figures 7-12).



CASE 3



Figure 13. Application of Futurabond U at the entrance to the canal.



Figure 14. The root canal is reliably wetted with Futurabond U.



Figure 15. Application of the build-up and luting material, Rebuilda DC (VOCO).

Case 3

The use of Futurabond U as part of the self-etch technique makes sense in clinical cases in which only the dentine substance has to be etched and/or where the enamel area does not require intensive and very aggressive conditioning. This clinical case of a 42-year-old male patient shows the attachment of a post and the

use of Futurabond U following extensive cavity preparation for a prosthetic restoration in which, for the most part, only dentine was etched. Using special applicators (Endo Tim, VOCO) for use in the root canal, the adhesive is able to take full effect here as the canal walls are wetted in their entirety.

Active rubbing in of VOCO Futurabond U in all dentine surfaces in the root canal serves to optimally prepare the tooth structure for subsequent attachment (Figures 13-15). Light curing which is difficult to perform in the root canal is not necessary with the dual-curing VOCO Futurabond U.

CASE 4



Figure 16. Typical defect on the margin of an older gold filling.



Figure 17. Total etch.

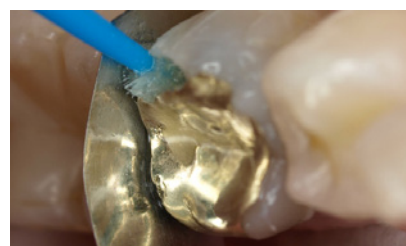


Figure 18. Application of Futurabond U on the restoration and dental hard tissue.



Figure 19. Application of flow composite.



Figure 20. After successful repair work.

Case 4

In addition, Futurabond U offers the all-important advantage of also guaranteeing reliable adhesive without an additional primer on a range of materials such as metal, zirconia, aluminium oxide and silicate ceramic, thus making it ideal for intraoral repairs. Figures 16-20 show a typical clinical case in which the preservation of the existing gold filling involved the repair of dental hard tissue. Here good adhesion to completely different materials is the prerequisite for a successful and long-lasting restoration.

In day-to-day practice, we are confronted with a variety of everyday problems. Futurabond U represents an ideal aid to handling these challenges.

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