Finally, in a last experiment, a water-free G-Bond version was tried in an attempt to improve the stability of the adhesive formulation. This version requires a wet tooth surface, knowing that without water the surface will not be wettable. This water-free formulation therefore stood for a technique-sensitive wet-bonding technique, that above all failed in achieving a bonding performance as good as that of the actual commercial G-Bond (Table 1 and Fig. 3).

The ultimate proof of performance of an adhesive should follow from clinical research, and in particular when the adhesive is tested in a class-V cavity configuration. Only these restorations do not encompass macro-retention, by which adhesive failure will definitely result in restoration loss, the most objective and indisputable criterion of adhesive performance. Therefore, a comparison between restorations placed using G-Bond and a conventional 3-step etch & rinse adhesive OptiBond FL (Kerr) was suggested.

In conclusion, extensive and profound laboratory studies confirmed that the unique concept of the water-free adhesive G-Bond not only allows a fast and easy application procedure, but also provides a reliable and predictable bonding performance. Very important to achieve this is the necessity to strongly activate the adhesive, thereby effectively removing water from the adhesive interface.

REFERENCES


HMA is generally provided as a bonding agent that does not require any etch adhesive, G-Bond (GC) has been shown to be able to deliver a bonding performance of the adhesive. Nevertheless, GC has opted to keep HMA in its formulation of G-Bond in order to avoid allergic effects to both practitioner and patient, especially because the polymeric phase is no longer needed as it has the traditional etching with mixed-reinforcement, which is more surface-oriented.

In addition, the latest generation of etch and rinse adhesives (Van Meerbeek et al., 2006). These adhesives less technique-sensitive, reduces the application time and makes the bonding procedure more user-friendly, since the bonding performance of the adhesive. Nevertheless, GC has opted to keep HMA in its formulation of G-Bond in order to avoid allergic effects to both practitioner and patient, especially because the polymeric phase is no longer needed as it has the traditional etching with mixed-reinforcement, which is more surface-oriented.

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