SCIENTIFIC INFORMATION

Bifix SE - Abrasion

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> The longevity of an indirect restoration directly depends on the life expectancy of the luting material. Minimal wear behaviour is therefore absolutely necessary, especially when the high costs of indirect restorations are considered. The wear of Bifix SE with respect to abrasion was studied at the University of Erlangen.[1]

The Abrasion in cement interstices is an important factor in determining the quality of a luting material. Since the adjacent indirect restoration (mostly ceramic or PFM) and the adjoining enamel have extremely hard surfaces, they are consequently not affected as much by the process of abrasion. This can result in the emergence of micro-crevices in the cement interstices. These micro-crevices represent regions that are preferred for the formation of secondary caries.

Diverse luting materials were studied for their resistance to abrasion at the University of Erlangen. Both ACTA methods and simulated tooth brushing abrasion were implemented.[1] These two techniques differ in the type of loading. With the ACTA method, a compressive load is carried out that simulates daily chewing pressure. The tooth brushing abrasion, in contrast, is a shear stress that also differs in its angle of entry. The results of this study are summarised in Figure 1.
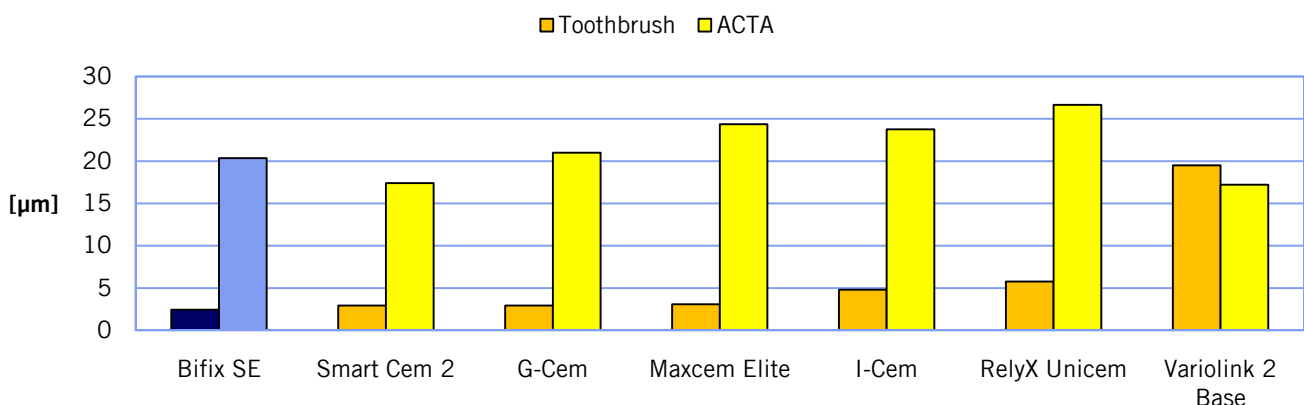

Figure 1:   Abrasion resistance with the ACTA method (200,000 cycles) and after toothbrush abrasion

Bifix SE achieved outstanding values in both testing procedures and thus exhibits superlative abrasion resistance.

> Conclusion: The luting composite Bifix SE exhibited a high resistance to abrasion, which is essential for durable, intact cement interstices. With the use of Bifix SE, the risk of formation of micro-crevices and the development of secondary caries is thus minimised.

[1] Study report Dr. U. Lohbauer, University of Erlangen, 2008, data on file.

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