

# SCIENTIFIC REPORT

## x-tra base – 3-year clinical study

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**The bulk fill material x-tra base has been investigated with regard to a long-term clinical stability in a 3-year study at the University of Samsun in cooperation with the dental health centre of Ankara.<sup>[1]</sup>**

There are different approaches to prevent shrinkage and the resulting shrinkage stress of composites. Composites are generally applied in layers in order to reduce contact surfaces to the cavity walls. Disadvantages are seen in the fact that multiple applications of small amounts of composite increase the risk of air inclusions and contamination.<sup>[1]</sup> Flowable composites which have a lower modulus of elasticity than packable materials and are supposed to compensate the shrinkage stress with their higher elasticity, are usually used for bulk fill restorations.<sup>[1]</sup> Another advantage of flowables is, due to the lower viscosity, the higher wetting capacity which makes it easier to line irregular cavities. Since the launch of bulk materials, it is possible to apply increments in 4 mm layers, which reduce the quantity of layers and the time effort. The risk of air inclusions and contamination are also minimized. In order to see how VOCO's bulk fill material x-tra base reacts in the clinical daily routine, a 3-year study has been evaluated by Karaman *et al.*<sup>[1]</sup>

### Study design

47 pairs of endodontically treated teeth with class II (MO or OD) cavities of 37 patients have been restored. Adper™ Single Bond 2 (3M ESPE) has been used as adhesive in all cases. Half of the cavities have been filled with a 2 mm increment of Aeliteflo™, the remaining cavities have been filled with a 4 mm increment of x-tra base. All restorations have been coated with GrandioSO. The restorations have been evaluated after a half, 1, 2 and 3 years and rated according to modified USPHS\* criteria. "Alpha" means very good/excellent and "Bravo" means good.

### Results

For the final call after three years 33 restorations of each Aeliteflo™ (Bisco) and x-tra base could be evaluated. Only two fillings of each group (6 %) have been rated with "Bravo" in terms of the surface properties. The shade match of one restoration of the x-tra base group (3 %) has been rated with "Bravo". All other criteria (secondary caries, marginal tightness, anatomical shape and marginal gap discoloration) have been rated with "Alpha".

These results are a proof that x-tra base is an excellent material for occlusion-bearing fillings in the posterior regions and that the bulk fill technology is a great alternative to the conventional increment technique.

**Conclusion: The bulk fill material x-tra base shows excellent long-term properties as well as a high clinical acceptance and therefore represents a great and time-saving alternative to conventional materials.**

[1] E. Karaman, B. Keskin, U. Inan, *Clin Oral Invest* 2017, 21, 709 and references contained therein, v.a. [17-26].

\* Modified United States Public Health Service (USPHS) Ryge Criteria for Direct Clinical Evaluation of Restoration