

**Posterior bulk-filled resin composite restorations:
A 5-year randomized controlled clinical study.
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Conventionally layered composite restorations are placed in increments of only 2 mm. Newer bulk-fill composites can be light-cured in thicker layers to fill posterior cavities. However, a main concern is whether this simpler filling technique can be used without loss of quality. While the clinical long-term performance of conventionally layered composites is well documented, clinical data on bulk-fill composites is rare. So far, only for the bulk-fill SureFil SDR *flow*¹, 3-year results have been reported in a randomized clinical study. The current study showed good clinical results for the recalled SureFil SDR *flow*¹ restorations after 5 years, similar to the failure rate reported for conventionally layered composites.

Method: In total, 86 patients with one or two pair similar Class I or II cavities received 200 composite restorations by two dentists. The SureFil SDR *flow*¹ cavity of each pair was filled in bulks of 4 mm up to 2 mm short of the occlusal surface and covered with the hybrid composite Ceram-X mono+. The other cavity was conventionally filled with Ceram-X mono+ in 2-mm layers. The majority of the cavities were deep and had extended size. In all cavities, Xeno V+ was applied as the adhesive. The restorations were evaluated at baseline and then annually during 5 years.

Results: No post-operative sensitivity was reported. At 5 years, 183 restorations, 68 Class I and 115 Class II, restorations were evaluated. Ten restorations failed, 4 SureFil SDR *flow*¹ and 6 conventionally layered restorations, all of which were Class II. The main reason of failure was tooth fracture and secondary caries resulting in annual failure rates of 1.1% for SureFil SDR *flow*¹ and 1.3% for conventionally layered restorations. No significant differences were observed between bulk-filled and conventionally layered composite restorations for the evaluated criteria at the recall ($p = 0.12$).

Acceptable ratings at the 5-year recall

Criteria	SureFil SDR <i>flow</i> ¹ restoration (n = 92)	Conventional restoration (n = 91)
Anatomical form	96.7%	94.5%
Marginal discoloration	100%	100%
Marginal adaptation	96.7%	95.6%
Color match	100%	98.8%
Surface roughness	100%	100%
Secondary caries	97.8%	97.8%

¹ Study was conducted with „SDR“, the European brand for SureFil SDR flow with identical chemistry.