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[\[PDF \(567K\)\]](#) [\[References\]](#)***In Vitro* Durability of One-bottle Resin Adhesives Bonded to Dentin**[Masanori HASHIMOTO](#)<sup>1)</sup>, [Shinichi FUJITA](#)<sup>1)</sup>, [Masayuki KAGA](#)<sup>1)</sup> and [Yasutaka YAWAKA](#)<sup>1)</sup>

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**Abstract:**

Recently, one-bottle resins adhesives have been developed to reduce the number of clinical steps of resin application. They are now widely used in clinical dental practice. However, little is known regarding the detailed mechanism of bond degradation. Therefore, this study evaluated the durability of one-bottle resin adhesives using long-term water storage testing. Resin-dentin bonded specimens were prepared using five commercially available one-bottle resin adhesives. The specimens were sectioned perpendicular to the adhesive interface to produce beams and stored in distilled water for 24 hours (control), 100, 200, and 300 days. After the water storage, each beam was subjected to a microtensile bond test and then SEM fractography was performed on the fractured surface.

Compared to the bond strength at 24 hours after bonding (control), the bond strength of all tested adhesives were significantly decreased after 100 or more days in water. SEM fractography revealed a typical type of deterioration in the adhesive-composite interface that might cause a decline in bond strength after aging.

**Key words:**[One-bottle resin adhesive](#), [Degradation](#), [Hydrolysis](#)



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