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[\[Image PDF \(608K\)\]](#) [\[References\]](#)**Effect of Water on Bonding of One-bottle Self-etching Adhesives**[Masanori HASHIMOTO](#)<sup>1)</sup>, [Shinichi FUJITA](#)<sup>1)</sup>, [Masayuki KAGA](#)<sup>2)</sup> and [Yasutaka YAWAKA](#)<sup>2)</sup>

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**Abstract:**

This study evaluated the effect of water on dentin substrate bonding of one-bottle self-etching adhesives. Dentin substrates were divided into two groups: wet and dry dentin. Wet dentin is the normal substrate for bond testing whereas dry dentin was dehydrated in a desiccator for 24 hours. Bonded dehydrated teeth were then divided into two subgroups: stored in water or in desiccator for 24 hours. Microtensile bond strength of resin to dentin was measured using three one-bottle self-etching adhesives. In addition, nanoleakage evaluation was performed through the analyses of SEM and TEM micrographs. The bond strength of dry-dentin group was significantly greater than that of wet-dentin. Further, the amount of nanoleakage within the adhesive interface of dry-dentin group was less than that of wet-dentin. Results showed that bond strength and nanoleakage formation depended on the bonding substrate (wet *versus* dry dentin) before bonding. One-bottle self-etching adhesives might suck the water from dentinal tubules during bonding by osmosis, leading to nanoleakage formation and thus a decline in bond strength.

**Key words:**[One-bottle resin adhesive](#), [Bond strength](#), [Electron microscopy](#), [Degradation](#)[\[Image PDF \(608K\)\]](#) [\[References\]](#)

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