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[\[PDF \(260K\)\]](#) [\[References\]](#)**Effect of a New Thermal Cycling Method on Bond Strength of Two-step Self-etching Adhesive Systems**[Takashi NAKATA](#)¹⁾, [Megumi FUJITA](#)¹⁾, [Futami NAGANO](#)²⁾, [Mamoru NODA](#)²⁾ and [Hidehiko SANO](#)¹⁾

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Abstract:

The purpose of this study was to examine the effect of a new thermal cycling method using PCR thermal cyler on the durability of two-step self-etching adhesive systems. Beam specimens for microtensile bond strength test were inserted into PCR tubes with distilled water. Thermal cycling (0, 1000, 2000, and 3000 cycles) was done with the PCR program at two different temperatures of 5 and 55°C for 30 seconds each using a PCR thermal cyler. After thermal cycling, specimens were subjected to microtensile bond strength test and fractured surfaces were observed by SEM. The bond strength of Imperva Fluoro Bond after 3000 times of thermal cycling was significantly decreased compared to those of less than 2000 cycles ($p < 0.05$), whereas SI-R20401 showed no significant differences even after 3000 cycles ($p > 0.05$). Results of this study revealed that bond strength was affected by the thermal stress introduced in this experimental model. Therefore, this new thermal cycling method is a potentially useful and accessible means to evaluate the durability of dentin adhesive systems.

Key words:[Two-step self-etching](#), [Microtensile bond strength](#), [Thermal cycling](#)[\[PDF \(260K\)\]](#) [\[References\]](#)

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