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[\[PDF \(406K\)\]](#) [\[References\]](#)**Treated Enamel Surface Patterns Associated with Five Orthodontic Adhesive Systems—Surface Morphology and Shear Bond Strength**[Makiha SHINYA](#)<sup>1)</sup>, [Akikazu SHINYA](#)<sup>2)3)</sup>, [Lippo V. J. LASSILA](#)<sup>2)</sup>, [Harunori GOMI, Juha VARRELA](#)<sup>1)</sup>, [Pekka K. VALLITTU](#)<sup>2)</sup> and [Akiyoshi SHINYA](#)<sup>3)</sup>

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**Abstract:**

The chief aim of this study was to evaluate the influence of three different types of pretreatment solutions (phosphoric acid, self-etching primers, and polyacrylic acid) on enamel surfaced when used in association with one of the five orthodontic adhesive systems. In the same vein, the shear bond strength of orthodontic metal brackets was also measured to evaluate the influence of bonding procedure. After the enamel surfaces of extracted human maxillary incisors were pretreated with the five adhesive systems, scanning electron microscopy (SEM) was used to observe the effects of pretreatment on enamel. Additionally, the shear bond strength of metal brackets bonded with the five adhesives was measured (n=6). SEM observation revealed different etching patterns on the enamel surface after pretreatment. As for shear bond strength, no statistically significant differences were observed among the five different adhesives (p>0.05). It was found that self-etching primers and polyacrylic acid produced a less aggressive etching pattern than phosphoric acid. Nonetheless, all the five adhesive systems provided acceptable bond strength and

attachment of orthodontic brackets.

**Key words:**

[Scanning electron microscopy](#), [Bond strength](#), [Self-etching primer](#)

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