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[\[Image PDF \(1249K\)\]](#) [\[References\]](#)**Acid Etching of Titanium for Bonding with Veneering Composite Resins**[Seiji BAN](#)¹⁾, [Toshio TANIKI](#)¹⁾, [Hideo SATO](#)¹⁾, [Hiroshi KONO](#)¹⁾, [Yukari IWAYA](#)²⁾ and [Motoharu MIYAMOTO](#)²⁾

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Abstract:

Commercially pure titanium (cpTi) was etched using three concentrated acids: 18% HCl, 43% H₃PO₄, and 48% H₂SO₄. The bond strengths between five types of veneering composite resin and eight cpTi treatments (involving combinations of sandblasting, acid etching in 48% H₂SO₄, and vacuum firing) were determined before and after 10,000 and 20,000 thermal cycles. There were no significant differences in the bond strength of resin to cpTi after etching in 48% H₂SO₄ at 90°C for 15 minutes, at 60°C for 15, 30, or 60 minutes, and after sandblasting with and without vacuum firing (p>0.05); moreover, these treatments yielded the highest values. As for vacuum firing, it had no significant effect on resin bond strength to cpTi before or after 10,000 and 20,000 thermal cycles. We therefore concluded that acid etching in concentrated H₂SO₄ is a simple and effective surface modification method of titanium for bonding to veneering composite resins.

Key words:[Titanium](#), [Acid etching](#), [Composite resin](#)



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