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[\[Image PDF \(506K\)\]](#) [\[References\]](#)**Effect of additive metals, Sn, Ga, and In in Ag-Pd-Au-Cu alloys on initial bond strength of 4-META adhesive cement to these alloys**[Shin-ichi GOTO](#)¹⁾, [Pornkiat CHURNJITAPIROM](#)¹⁾, [Yukio MIYAGAWA](#)²⁾ and [Hideo OGURA](#)¹⁾

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Abstract:

The purpose of this study was to investigate the effects of three additives, Sn, Ga, and In, as well as the main constituents, Pd and Cu, of Ag-Pd-Au-Cu alloys on the initial bond strength of 4-META adhesive cement to these alloys. The Ag-Pd-Au-Cu alloys consisted of 20%, 30% or 40%Pd, and 10%, 15% or 20%Cu, 20%Au, and Ag as balance. Besides, additive metals (Sn, Ga, and In) of 2% and 4% were added to these compositions. The addition of three additives, in general, increased the initial bond strength of the cement in comparison to the mother compositions (0% additives), although the degrees of effectiveness of the three additives were different and varied with their contents. Among these additives, a remarkable increase in bond strength was observed with the addition of In. The increase in Cu content, in many cases, resulted in an increase in bond strength at high Pd contents (30% and 40%), but a decrease at low Pd content (20%) in some cases. The positive effects of the three additives and Cu could be due to the formation of a suitable oxide layer for strong bonding with 4-META.

Key words:[Ag-Pd-Au-Cu Alloy](#), [Bond Strength](#), [4-META adhesive cement](#)

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