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[\[Image PDF \(715K\)\]](#) [\[References\]](#)**Development of Bonding System for Resin Core Construction by M ω A Adhesive**[Misako ODAKI](#)¹⁾, [Norihiro NISHIYAMA](#)²⁾ and [Masahiro AIDA](#)³⁾

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Abstract:

We designed self-etching primers consisting of a series of four N-methacryloyl- ω -amino acids, M ω A, of different methylene chain numbers for resin core construction. The interacted amount of M ω A's carboxylic acid with root or crown dentin apatite was determined, and its effects on dentin bond durability examined.

The addition of both dentin particles to the M ω A solutions caused the carbonyl carbon peak of carboxylic acid in M ω A to shift to a lower field, chiefly because of an acid-base interaction between carboxylic acid and calcium. Then, as the pKa value of M ω A's carboxylic acid increased, the amount of carboxylic acid that interacted with calcium decreased. In terms of dentin bonding durability, the four tested M ω A adhesives provided noticeably higher bond strengths of resin to root or crown dentin than ED Primer II. Therefore, from the perspective of restoring pulpless teeth with minimal intervention, carboxylated M ω A adhesives seemed to be very useful as functional monomers for self-etching primers.

Key words:[Self-etching primer](#), [N-methacryloyl- \$\omega\$ -acid](#), [Dentin bond durability](#)

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