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# Self-etching Ceramic Primer Protocol Provides Efficient Shear Bond Strength and Durability Between Lithium Disilicate Glass-ceramic and Resin Cement: A Potential Alternative to the Conventional Hydrofluoric Acid Protocol

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## Abstract

**Objectives:** This study investigated the effects of two surface treatment protocols on the shear bond strength, bond durability, and failure mode at the interface between lithium disilicate glass-ceramic and resin cement. The protocols compared were a self-etching ceramic primer and the conventional hydrofluoric acid (HF) etching followed by silane.

**Methods:** Fifty lithium disilicate specimens were randomly divided into five surface treatment groups (n=10 each). A control group received no treatment. The remaining 4 groups included: 5% HF etch with Monobond Plus thermocycled and non-thermocycled, Monobond Etch & Prime (MEP), thermocycled and non-thermocycled. Microshear bond strength (microSBS) was assessed before and after thermocycling to evaluate bond durability. Failure modes (adhesive, mixed, cohesive in resin/ceramic) were recorded under a stereomicroscope.

**Results:** Both surface treatment protocols exhibited comparable microSBS for both pre- and post-thermocycling results. Moreover, bond durability obtained from the two treatment protocols seemed to be comparable. Most groups displayed adhesive/mixed failures. Notably, the self-etching ceramic primer group showed cohesive failure in half of the specimens initially, persisting in 20% after thermal aging.

**Conclusions:** Compared with the conventional HF protocol, the self-etching ceramic primer protocol provided similar microSBS and bond durability between lithium disilicate glass-ceramic and resin cement. The data suggest a self-etching ceramic primer is a viable option for the conventional HF protocol in bonding to glass-ceramic, minimizing the HF hazard and simplifying the clinical procedure.

**Keywords:** bond durability, bond strength, hydrofluoric acid, lithium disilicate, self-etching ceramic primer