THE EFFECT OF PRIMERS ON BOND STRENGTH OF SILICONES TO AUTOPOLYMERIZING ACRYLIC RESIN

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ABSTRACT

It is common knowledge that silicone is difficult to bond to acrylic resins. To make a proper primer selection, one has to identify the kind of acrylic resin and silicone. Each primer is made to match a certain type of substrate resin or silicone.

The purpose of this study was to evaluate the effects of different primers on bond strength between two types of silicone (MDX 4-4210 and Episil-E) and autopolymerizing acrylic resin (Ortho- Jet) and to find the silicone/primer combination giving the highest bond strength necessary for maxillofacial prostheses. The primers used in this study were A-304, A-306, A-330G, Epicon, Sofreline Tough. All specimens were loaded in tension mode in a Universal Testing Machine with a crosshead speed 50 mm. /min. until the failure of bonding occurred.

The results showed that the bond strength was affected by type of silicone, primer, and interaction between silicone and primer when using primers to adhere silicone and acrylic resin. The highest bond strength was found with combination Episil-E / Epicon when bonded to Ortho-Jet acrylic resin. Of the five primers used to bond MDX4-4210 silicone and Ortho- Jet acrylic resin, the highest bond strength was found in A330-G, followed by Epicon, Sofreline Tough, A304, and A306. Of the five primers used to bond Episil-E and Ortho-Jet acrylic resin, Epicon had the highest tensile bond strength, A304, A306, Sofreline Tough showed the lowest, and A330-G had intermediate tensile bond strength.

These findings show that the best silicone/primer combination generating the highest bond strength is Episil/ Epicon .

KEY WORDS: TENSILE BOND STRENGTH, PRIMER, SILCONE ELASTOMER, ACRYLIC RESIN

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