WATER SORPTION AND SOLUBILITY OF FLUORINATED EXPERIMENTAL DENTIN BONDING AGENTS

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ABSTRACT

Statement of problem. Fluorinated monomers have been shown to reduce water sorption and solubility in composite resins.

Purpose. Dentin bonding resins generally based upon All-Bond 2 and OptiBond Solo Plus were formulated using fluorinated TEGDMA, TEGDMA, bis-EMA, and I-IEMA. The purpose of this study was to measure and compare water sorption and solubility among experimental resins with various concentration ofF-TEGDMA (F-T) and commercial products.

Materials and Methods. Light-curable, filled and unfilled bonding resins were made with F- T concentrations of 0, 17, 24, and 30 wt% of the resin component. Silanized barium silicate glass was used for the filled resin at 48 wt%. According to the ANSIIADA Specification # 27, water sorption (yVsp) and solubility values (WsI) were determined for eight experimental and two commercial bonding resins with five specimens in each group.

Result. Statistical significant differences were found between filled and unfilled bonding resins ($p<0.05$) using ANOV A and Tukey HSD test.

Conclusion. Filler particles in bonding resins increase water sorption and solubility. The experimental filled bonding resins showed less water sorption than did the commercial products.

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