

A new polyisoprene-based light-curing denture soft lining material

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Abstract

OBJECTIVES: The purpose of this study was to investigate some clinically relevant properties of Clearfit LC, a newly developed polyisoprene-based light-curing lining material. Its properties were compared with those of other four commercial products. **MATERIALS AND METHODS:** Five soft lining materials, Clearfit LC, two plasticised acrylics (Super-soft, Soften) and two silicones (Molloplast B, Sofreliner) were used to determine water sorption, solubility, staining resistance, Shore A hardness and shear bond strength to denture base. Five specimens for each test were fabricated. The results of each test among the five materials were compared by one-way ANOVA and Scheffe's post-hoc test at $\alpha=0.05$. **RESULTS:** One-way ANOVA of each test showed that the differences among five materials were significant ($P<0.05$). Clearfit LC showed the intermediate water sorption and solubility (10.07; 1.72 microg/mm³). It also showed the lowest color change in beta-carotene/olive oil solution and instant coffee solution ($\Delta E=1.19, 5.48$, respectively). The shear bond strength of Clearfit LC was 1.56MPa, and no adhesive failure was found. Its Shore A hardness value (56.2) was located between two acrylics and silicones. It was also found that the softer materials tend to failure cohesively. **CONCLUSIONS:** The polyisoprene-based lining material showed low water sorption and solubility, moderate softness, high staining resistance and satisfactory shear bond strength to denture base resin. It also provides clinicians sufficient working time due to its light-curing property. It would be an attractive alternative as a relining material.