Comparison of properties between heat-cure acrylic resin and pour-type acrylic resin

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This study was conducted to compare some properties of heat-cure acrylic resins and pour-type acrylic resins. These data will aid in selecting pour-type acrylic resins as a material for denture base construction in order to shorten the processing time in some situation. To determine water sorption, solubility, color stability and biaxial flexural strength samples were prepared in disk approximate 20 millimeters in diameter by 2 millimeters thick. The uniaxial flexural test were made on samples prepared in rectangular blocks (25x5x2 millimeters dimensions). To evaluate the shrinkage samples were prepared in rectangular bars (25x10x2 millimeters dimensions) with three 5-millimeter diametric holes. Ten samples were made for each test, 5 of them are heat-cure acrylic resins and another 5 are pour-type acrylic resins. Statistical analysis by the Mann-Whitney U Test was conducted at the 95% level of confidence. The results of this study indicated that heat-cure acrylic resins showed significantly higher water sorption, uniaxial flexural strength, shrinkage and color stability (7, 14 days) than pour-type acrylic resins ($P<0.05$). Yet, it was found that pour-type acrylic resins demonstrated significantly higher solubility than heat-cure acrylic resins ($P<0.05$). There was no significant difference ($P>0.05$) in biaxial flexural strength and color stability (1 day) between the two materials. From the result, it can be concluded that pour-type acrylic resins can be used as a material for denture base construction.

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