Egyptian Dental Journal, 46,1967 :1974, October, 2000

REDUCTION OF POLYMERIZATION SHRINKAGE IN METHYL METHACRYLATE-MONT 0 ILLONITE COMPOSITES

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ABSTRACT

The objective of this research work was directed to solve one of the major problems of polymethyl-methacrylate (Acrylic resin) material, which is polymerization shrinkage. Organophilic montmorillonite (clay tone) material was added up to l % by wt to one commercial type of polymethyl-methacrylate (PMMA) powder to form PMMA-MMT composite. Acrylic test specImens were processed by the conventional (wafer bath) heat curing method following manufacturer instructions. Warpage and linear polymerization shrinkage measurements were achieved using "traveling microscope" and one way analysis of variance was employed to compare results. The results indicated that there was a significant decrease of warpage and linear dimensional changes between Virgin (clay free) PMMA specimens and that of PMMA-MMT composite materials. The resulting materials have been identified by x-ray diffraction and thermogravimetric analysis.

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