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[\[PDF \(1426K\)\]](#) [\[References\]](#)**Effect of PMMA filler particles addition on the physical properties of resin composite**

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Abstract:

The aim of this study was to evaluate the effect of additional polymethyl methacrylate (PMMA) fillers on the physical properties of experimental resin composites. PMMA particles ($d=30\ \mu\text{m}$) were added to an experimental methacrylate-based resin composite in five concentrations of 0, 2.0, 4.8, 9.1, and 23.1 wt%. Properties such as contact angle, water sorption and compressive strength were measured and the fractured specimens were observed with a scanning electron microscope. The results showed that a small amount (2 wt%) of additional PMMA fillers inhibited the crack propagation and enhanced compressive strengths of the resin composites, without a significant change in water contact angle of surface or increased water sorption. However, in higher portions, the mechanical properties were not improved as a debonding at the interface between untreated fillers and the matrix, or failure within the organic filler could reduce the compressive yield strength of the composite.

Key words:
[PMMA](#), [Resin composite](#), [Filler](#)

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