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Mechanical Properties of Woven Glass Fiber-Reinforced Composites

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Abstract:
The aim of this investigation was to measure the flexural and compressive strengths and the corresponding moduli of cylindrical composite specimens reinforced with woven glass fiber. Test specimens were made by light-curing urethane dimethacrylate oligomer with woven glass fiber of 0.18-mm standard thickness. Tests were conducted using four reinforcement methods and two specimen diameters. Flexural strength and modulus of woven glass fiber-reinforced specimens were significantly greater than those without woven glass fiber ($p<0.01$). Likewise, compressive strength of reinforced specimens was significantly greater than those without woven glass fiber ($p<0.01$), except for specimens reinforced with woven glass fiber oriented at a tilt direction in the texture ($p>0.05$). In terms of comparison between the two specimen diameters, no statistically significant differences in flexural strength and compressive strength ($p>0.05$) were observed.

Key words:
Mechanical property, Glass fiber, Composite

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