

## Enhanced Dimensional Stability of Rigid PVC Foams Using Glass Fibers

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**Abstract :** Two types of glass fibers having different lengths (1/16" and 1/32") were added into rigid PVC foams to enhance the dimensional stability of extruded rigid Polyvinyl Chloride (PVC) foam at different concentrations (0-20 phr) using a single screw profile extruder. PVC foam-glass fiber composites (PVC-GF) were characterized for their dimensional stability, structural, thermal, and mechanical properties. Experimental results show that the dimensional stability, heat resistance, and storage modulus were enhanced without compromising the tensile and flexural strengths of the composites. Overall, foam composites which were prepared with longer glass fibers exhibit better mechanical and thermal properties than those prepared with shorter glass fibers due to higher interlocking between the fibers and the foam cells, which result in better load distribution in the matrix.

**Keywords :** polyvinyl chloride, PVC foam, PVC composites, polymer composites, glass fiber composites, reinforced polymers

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