

Determination of volume fraction values of filament wound glass and carbon fiber reinforced composites

ABSTRACT

With the expansion of composites into application like pipes and pressure vessels, there exists a need for further studies on the properties of these materials. This paper presents the results from a series of tests on the physical properties of composite materials. Specimens cut from pipes made from composite materials to be tested under internal pressure loadings have been tested by using a series of ASTM D2584 (1968) standards test methods for glass fiber reinforced composites and the density method for carbon fiber reinforced composites. The results from this series of tests have been tabulated and presented. The volume fraction for the glass and carbon fibers were found to be 0.476 and 0.540, respectively.

Keyword: Volume fraction; Glass fibers; Carbon fibers; Burning; Density; Method