

SHEAR PROPERTIES OF LAMINATES MADE OF ISOTROPIC PCBA AND PMMA LAYERS AS DETERMINED THROUGH SHORT BEAM BENDING TESTS

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Abstract: In this work shear properties of symmetric or asymmetric sandwich type laminated were obtained from the properties of the constituent laminae made of isotropic layers of Lexan (PCBA) and Plexiglas (PMMA). An investigation concerning mainly the influence of the stacking sequence of the laminate, which affect the mechanical properties was carried out. A brief theoretical analysis based on lamination theory and mechanics of materials was made in order to obtain some mechanical properties such as modulus of elasticity, deflection, etc. in order to compare with experimental results.

Short beam bending tests with specimens made of sandwich type laminates made of various stacking sequences were performed. If multiple isotropic layers of various thickness are arranged symmetrically about the middle surface, from both a geometric and a material property standpoint, the resulting laminate does not exhibit coupling between bending and extension. However, some applications of laminated composite materials require asymmetric laminates to achieve design requirements.