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# A numerical homogenization of E-Glass/Acrylic woven composite laminates: application to low velocity impact

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## Abstract

For recyclability purposes, an acrylic resin (Elium 150) has been recently developed for the elaboration of laminated composites at room temperature. This new resin is endowed with some interesting mechanical properties that allow it to replace some epoxies in some industrial applications where a high strength is required. In this paper, the mechanics of structure genome (MSG) and a finite element based micromechanics approaches were conducted to evaluate the effective thermomechanical properties of a plane woven glass fiber/acrylic resin composite laminate. Through a two-step and the asymptotic homogenization approach, the present investigation aims to predict the elastic properties of the glass fiber/Acrylic resin laminated composites. Prior to numerical simulations, some experimental observations have been performed on the laminate samples in order to accurately

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