

INVESTIGATING OF MECHANICAL PROPERTIES
OF REINFORCED PLASTIC (FIBERGLASS)

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ABSTRACT

Fiberglass is refers to a group of products made from individual glass fibers combined into a variety of forms and act as reinforcing agent. The objectives of this project are to study on mechanical properties of fiberglass, investigate the relation between fiberglass and polyester resin, and to understand on the mechanical behaviour of fiberglass. The problem of bonding between fiber and the matrix resin affect the strength of the fibreglas and this need to be deals with the study on their mechanical properties by using mechanical experiment test. Test test is carried out using Tensile Test, Izod Test, and Charpy Test, which all are focusing on investigating mechanical properties on the specimens. Fiberglass is made up by using hand lay-up technique, where different laminate of fibreglass made up by different mass of resin which result difference thickness. The aim of the test is to study on this fibreglass strength, impact strength, and to observed on the mechanical behaviour of this material. It was found that the higher the thickness of fibreglass, the stronger the fibreglass be.

ABSTRAK

Plastik yg diperkukuh, atau dikenali sebagai fiber-reinforced plastic (FRP), mempunyai bahan gentian kaca didalamnya. Objectif projek ini ialah untuk mengkaji sifat mekanikal bahan gentian kaca, menyiasat hubung kait antara bahan gentian kaca dengan bahan penguat, serta memahami sifat laku mekanikal bahan tersebut. Masalah yang timbul di antara ikatan gentian kaca dan bahan penguat resin menjejaskan kekuatan bahan ini, dan tesis ini membincangkan sifat mekanikal bahan ini dengan cara menjalankan eksperimen. Eksperimen yang dijalankan iaitu, ‘Tensile Test’, Izod Test’, dan ‘ Charpy Test’ semuanya memfokuskan kajian tentang sifat sifat mekanikal yang ditunjukkan oleh spesimen. Bahan gentian kaca ini dihasilkan sendiri menggunakan tangan melalui teknik ‘tindih dan tindih’, yang mana mempunyai jumlah bahan gam penguat yang berbeza, yang akhirnya gentian kaca akan mempunyai ketebalan berlainan. Tujuan dijalankan eksperimen ini ialah bagi mengukur kekuatan bahan, daya tahan bahan terhadap impak, dan melihat sendiri perubahan yang berlaku terhadap gentian kaca apabila dikenakan daya. Ianya diketahui bahawa makin tebal bahan gentian kaca, maka makin kuat bahan tersebut.