



**IMPACT PERFORMANCE OF GLASS FIBRE/EPOXY COMPOSITE
MATERIAL**

FAHIZI BIN IBRAHIM

(99385378)

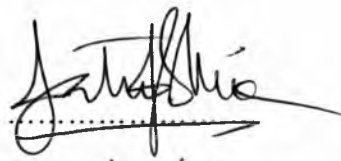
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“I declare that this thesis is the result of my own work except the ideas and summaries which I have clarified their sources. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any degree.”

Signed :



Date :

17/10/2002

Fahzi Bin Ibrahim

UiTM No: 99385378

ABSTRACT

This project is aimed to study the performance of composite material due to tensile and impact loads. Correlation between the residual tensile strength and the impact energy can then be made. From this, a correlation between damage strength is established.

Damage tolerance of impacted Fibre Reinforced Composites is also an important consideration for the use of the materials particularly in aircraft and automotive industries. In damage tolerance testing, the test piece is subjected to low-blow impact energy levels that do not allow the striker to penetrate the test specimens prior to residual tensile strength evaluation.

From the experimental results, it was found that the material used has three number of layers arranged the following arrangement, [chopped strand/woven/chopped strand]. This arrangement gives tensile strength of 63.46 MPa and maximum impact toughness of about 14.8 Joules fully penetrated.

Microscopic examinations confirm the stacking sequence and type of fibre (chopped strand and plain woven) used. Also from the microscopic the dominant damage/failure mechanism can be ascertained. For non-impact specimen, fracture surface occupied over entire specimen width, whereas for low-impact specimen, damage seems to be localised at a small region.

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