



**EVALUATION ON TORSION TEST METHOD FOR COMPOSITE
MATERIALS**

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“I declared 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


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ABSTRACT

Theoretically, the torsion of a thin-walled tube or solid cylinder is an ideal in-plane shear test method. But, thin-walled tube and solid cylinder of composites are usually difficult to fabricate because they required special fabrication technique and expensive. Therefore, this project is conducted to explore various possible ways of fabricating such specimen from carbon and glass composites. The suitable fabricating method was found to be a Lay-up Method. Using this method, the composites was placed one layer at a time and the epoxy was used to bond them together. This process was repeated until the desired thickness of composites plate was achieved then it was compressed using hot press machine. Then, this plate was machined using a lathe machine to produce several solid cylinder specimens. Torsion test was conducted on these specimens using FKM Desktop Torsion Test Model machine. The results obtained were analyzed to determine the desired shear properties. It was found that the average values of modulus of rigidity, G obtained from the testing for carbon epoxy composite and glass epoxy composite were 1.14 GPa and 2.23 GPa respectively. Meanwhile, the values of maximum shear stress, τ_{max} for carbon epoxy composite and glass epoxy composite were 45.75 MPa and 70.99 MPa respectively. However, all these values were less than the values as compared to the reference values of the same composites.

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