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Experimentation and Analysis of Reinforced Basalt and Carbon Fibres Composite Laminate Mechanical Properties

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Abstract : The aim of the present work is to investigate the mechanical properties and water absorption capacity of carbon and basalt fibers mixed with matrix epoxy. At present, there is demand for nature friendly products. Basalt reinforced composites developed recently, and these mineral amorphous fibres are a valid alternative to carbon fibres for their lower cost and to glass fibres for their strength. The present paper describes briefly on basalt and carbon fibres (uni-directional) which are used as reinforcement materials for composites. The matrix epoxy (LY 556-HY 951) is taken into account to assess its influence on the evaluated parameters. In order to use reinforced composites for structural applications, it is necessary to perform a mechanical characterization. With this aim experiments like tensile strength, flexural strength, hardness and water absorption are performed. Later the mechanical properties obtained from experiments are compared with ANSYS software results.

Keywords : carbon fibre, basalt fibre, uni-directional, reinforcement, mechanical tests, water absorption test, ANSYS
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