

Failure of symmetric composite plates E-Glass/Epoxy with various reinforcement arrangements

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Abstract : This study puts in evidence the effect of the change of the arrangement of the reinforcement (unidirectional, woven fabric and mat) on the rupture of E-glass/epoxy composite material. The considered laminates are symmetric of stacking sequence $[+/- ?]_3S$ and subjected of uniaxial traction loading. A mathematical approach based on failure criteria was used. The comparison of their behavior allows us to propose hybrids capable of improving the mechanical performances of composites, of decreasing the material anisotropy degree and to have consequently optimal structures.

Keywords : composite materials, reinforcement, mechanical behaviour, hybridization