

# Failure Behavior of Aluminium/CFRP with Varying Fibre Orientation in Quasi-static Indentation.

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**Abstract.** The response of the aluminium/carbon laminate was examined by an experimental work. The investigation on fibre metal metal laminate behavior was done through an indentation of a quasi-static loading. The hybrid laminate was fabricated by a compression moulding technique and used two types of carbon fibre orientations; plain weave and unidirectional. The plain weave orientation is dry fibre and unidirectional orientation is prepreg fibre. The plain weave carbon fibre and aluminum alloy 2024-0 was laminated by using thermoset epoxy while the unidirectional carbon fibre was pressed by using a hot press machine and cure under a specific temperature and pressure. A compression moulding technique was used for the FML fabrication. The aluminium sheet metal has been roughen by a metal sanding method which to improve the bonding between the fibre and metal layer. The main objective of this paper is to determine the failure response of the laminate under five variation of the crosshead displacements in the quasi-static loading. Based on the experimental data of the quasi static test, the result of 1 mm/min in the plain weave CFRP has higher loading than unidirectional fibre which the value of both were 4.82 kN and 4.72 kN. The plain weave strength maintained by the mechanical interlocking of the fibres and the stability controlled by the weave style.