

## Compressive Strength of Fiber Composite with Porosity

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The compression strength of fiber composites is analysed using a finite element model with a separate discretization of fiber and matrix. The analysis is carried out under the assumption of plane strain. The fiber material is considered elastic while the matrix material is described by a finite strain version of  $J_2$ -flow theory. A geometric imperfection is introduced as a band transverse to the fibers to initiate the development of a kink band. The sensitivity of the compression strength to the fiber misalignment angle is investigated and the most critical kink band angle is studied. Finally, porosities are included in the model to analyse how this material imperfection influences the compressive strength of the composite. Analyses are performed with different amount and location of the porosities and the results indicate that the presence of porosities reduces the compressive strength somewhat.

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