عنوان مقاله:

THE EFFECT OF MATRIX BOND FAILURE ON STRESS DISTRIBUTION IN SHORT AND LONG FIBERS OF A HYBRID COMPOSITE LAMINA

محل انتشار:

فصلنامه بین المللی مهندسی صنایع و تحقیقات تولید, دوره 18, شماره 4 (سال: 1386)

تعداد صفحات اصل مقاله: 11

نویسنده:

Mohammad Shishehsaz - *Associate professor, Shahid Chamran University, Dept. of Mech. Eng*

خلاصه مقاله:

The effect of a bond failure and its extent is studied on stress concentration in long fibers as well as stress distribution in short fibers and their surrounding matrix bays. The material is assumed to be a finite width hybrid composite lamina which is subjected to a tensile load of magnitude P at infinity. The surrounding matrix is assumed to take only shear (shear-lag theory). The bay adjacent to the first intact filament is allowed to experience a bond failure of size 2δ. This failure is due to excessive shear load in the matrix which exceeds the fiber-matrix bond strength. The matrix at this zone may or may not experience yielding. The short fibers are simulated by assuming two successive breaks along each filament. The effect of bond failure length on short fiber load bearing capability, as well as stress concentration in the first intact filament is fully investigated. The effect of hybridization, in presence of bond failure is also examined on short fiber load bearing behavior.

کلمات کلیدی:

Hybrid, Short fiber load, Matrix bond failure, Stress concentration