复合材料学报 2010, 27(1) 123-128 DOI: ISSN: 1000-3851 CN: 11-1801/TB

论文

大丝束碳纤维薄层化技术

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摘要：

采用机械式多辊系统薄层化技术，分析研究了大丝束碳纤维在不同形状辊子组合上的受力状态和可能的纤维运动状态，以及不同形状辊子组合对纤维损伤、薄层化后纤维分布状态的影响，在此基础上确定采用等径异型辊组合作为薄层化装置的核心部件，研究了采用3种不同曲率的等径异型辊时，不同纤维张力对大丝束碳纤维薄层化效果的影响。最终确定了该套薄层化装置达到最佳薄层化效果的等径异型辊的曲率半径应为330 mm，所施加的纤维张力应为46. 6 N。

关键词： 大丝束碳纤维 薄层化 薄层化技术 异型辊 等径异型辊

A technology used in spreading large tow carbon fibers

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Abstract:

A mechanical multi-rollers system was used to spread large tow carbon fibers, the force condition of large tow carbon fibers on different shaped rollers and the possible movement of fibers were analyzed, and the damage level and the dist ribution of spreaded fibers spreaded by different shaped rollers were studied also. Af ter amulti-rollers system within several equal diameter special-shaped rollers as kernel parts was determined , what kind of roles those factors such as the curvature of the special-shaped rollers and the tension play in spreading large tow carbon fibers were studied. It is determined that the optimal curvature radius of the special-shaped rollers and optimal tension exerted on fibers are 330 mm and 46. 6 N respectively.

Keywords: large tow carbon fibers spreading spreading technology special-shaped rollers several equal diameter special-shaped rollers

收稿日期 2009-03-06 修回日期 2009-05-22 网络版发布日期

DOI:

基金项目:

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