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Fusion Bonding of Polymer Composites [

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Libros electrónicos

Monografía

Fusion bonding is one of the three methods available for joining composite and dissimilar materials. While the other two, mechanical fastening and adhesion bonding, have been the subject of wide coverage both in textbooks and monographs, fusion bonding is covered here substantially for the first time. Fusion bonding offers a number of advantages over traditional joining techniques and it is anticipated that its use will increase dramatically in the future because of the rise in the use of thermoplastic matrix composites and the growing necessity for recyclability of engineering assemblies. Fusion Bonding of Polymer Composites provides an in-depth understanding of the physical mechanisms involved in the fusion bonding process, covering such topics as: - heat transfer in fusion bonding; - modelling thermal degradation; - consolidation mechanisms; - crystallisation kinetics; - processing-microstructure-property relationship; - full-scale fusion bonding; - fusion bonding of thermosetting composite/thermoplastic composite and metal/thermoplastic joints. The book focuses on one practical case study using the resistance welding process. This example exposes the reader to the development of processing windows for a novel manufacturing process including the use of experimental test programmes and modelling strategies

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