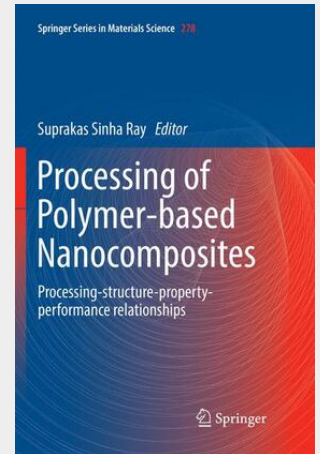


Processing of Polymer-based Nanocomposites

Processing-structure-property-performance relationships

Processing of polymer nanocomposites usually requires special attention since the resultant structure—micro- and nano-level, is directly influenced by among other factors, polymer/nano-additive chemistry and the processing strategy. This book consolidates knowledge, from fundamental to product development, on polymer nanocomposites processing with special emphasis on the processing-structure-property-performance relationships in a wide range of polymer nanocomposites. Furthermore, this book focuses on emerging processing technologies such as electrospinning, which has very exciting applications ranging from medical to filtration. Additionally, the important role played by the nanoparticles in polymer blends structures has been illustrated in the current book, with special focus on fundamental aspects and properties of nanoparticles migration and interface crossing in immiscible polymer blend nanocomposites. This book focuses heavily on the processing technologies and strategies and extensively addresses the processing-structure-property-performance relationships in a wide range of polymer nanocomposites, such as commodity polymers (chapter 1), engineering polymers (chapter 2), elastomers (chapter 3), thermosets (chapter 4), biopolymers (chapter 5), polymer blends (chapter 6), and electrospun polymer (chapter 7). The important role played by nanoparticles in polymer blends structures in particular is illustrated. The book is useful to undergraduate and postgraduate students (polymer engineering, materials science & engineering, chemical & process engineering), as well as research & development personnel, engineers, and material scientists.

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106,99 €

99,99 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

Artikelnummer: 9783030074043

Medium: Buch

ISBN: 978-3-030-07404-3

Verlag: Springer International Publishing

Erscheinungstermin: 28.12.2018

Sprache(n): Englisch

Auflage: Softcover Nachdruck of the original 1. Auflage 2018

Serie: Springer Series in Materials Science

Produktform: Kartoniert

Gewicht: 382 g

Seiten: 232

Format (B x H): 155 x 235 mm

