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Nota di contenuto	1. Introduction -- 2. Fundamentals of polymer blends and polymer blend nanocomposites -- 3. Processing technologies for polymer blend nanocomposites -- 4. Techniques for structural and morphological characterisation of polymer blend nanocomposites -- 5. Nanoparticles as interfacial modifier -- 6. Properties of polymer blend nanocomposites -- 7. Degradation studies on polymer blend nanocomposites -- 8. Applications of polymer blend nanocomposites -- 9. Conclusions & future outlook.
Sommario/riassunto	This book provides a comprehensive exploration of polymer blend nanocomposites, addressing their synthesis, morphology, processing, characterization, properties, and cutting-edge applications. Unlike existing books on polymer blends or nanocomposites, this volume uniquely focuses on the interplay between polymer blending and nanotechnology, offering a holistic understanding of the mechanisms governing nanoparticle migration, interfacial localization, and morphology control. The book begins with the fundamentals of

polymer blends and nanocomposites, emphasizing the thermodynamic and kinetic factors that dictate nanoparticle dispersion and phase interactions. It then delves into processing technologies, discussing how a combination of processing techniques can be optimized to achieve desired material properties. Structural and morphological characterization techniques are explored in detail, with case studies demonstrating real-world applications. A key focus is nanoparticles as interfacial modifiers, explaining how nanofillers can replace expensive compatibilizers to enhance mechanical, electrical, and barrier properties. The book further covers advanced properties, degradation studies, and biodegradability, making it an essential resource for developing sustainable materials. Finally, the book highlights practical applications, including packaging, electromagnetic interference (EMI) shielding, and biomedical uses, with case studies illustrating successful implementations. By providing an in-depth discussion of processing-structure-property relationships, this book equips scientists, engineers, and industry professionals with the knowledge to design high-performance polymer blend nanocomposites for next-generation applications.
