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Titolo	Fundamentals of Polymer-Clay Nanocomposites / / Gary W. Beall and Clois E. Powell [[electronic resource]]
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Descrizione fisica	1 online resource (vii, 185 pages) : digital, PDF file(s)
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Nota di contenuto	1. Introduction -- 2. Thermodynamics and kinetics of polymer-clay nanocomposites -- 3. Analytical methods in nanocomposites; 4. Gas diffusion characteristics of polymer-clay nanocomposites -- 5. Engineering properties of polymer-clay nanocomposites theory and theory validation -- 6. Variables associated with polymer-clay processing in relation to reinforcement theory -- 7. The effect of polymer type specificity to the production of polymer-clay nanocomposites -- 8. Flame retardancy.
Sommario/riassunto	Written for graduate students, researchers, and practitioners, this book provides a complete introduction to the science, engineering, and commercial applications of polymer-clay nanocomposites. Starting with a discussion of general concepts, the authors define specific terms

used in the field, providing newcomers with a strong foundation to the area. The physical and mechanical properties of polymer-clay nanocomposites are then described, with chapters on thermodynamics and kinetics, engineering properties, barrier properties, and flame retardancy. Mechanisms underpinning observed effects, such as UV resistance, solvent resistance, and hardness, are also explained. In-depth discussions of clay and clay surface treatment, fabrication, and characterization of nanocomposites are provided, and particular emphasis is placed on the proper use and interpretation of analytical techniques, helping readers to avoid artifacts in their own work. With commercial applications discussed throughout, and experimental results connected with theory, this is an ideal reference for those working in polymer science.
