1. Record Nr. UNINA9910800198603321

Autore	Oberle Tim
Titolo	Process Techniques for Engineering High-Performance Materials
Pubbl/distr/stampa	Boca Raton, : CRC Press LLC, July 2017 Florence, : Taylor & Francis Group [distributor]
ISBN	0-429-16660-5 1-138-43473-6 1-62870-750-X 1-4665-8189-1
Edizione	[1st edition]
Descrizione fisica	1 online resource (487 p.)
Classificazione	TEC020000TEC021000
Disciplina	620.11 658.5
Soggetti	Manufacturing processes Materials
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Front Cover; Contents; Acknowledgments; Introduction to Process Dependency; Author; Chapter 1 - The Process, the Product, and Its Ultimate Life Span; Chapter 2 - Fitness-for-Use Testing; Chapter 3 - Technical Creativity and Idea Generation; Chapter 4 - Finding Product Opportunity; Chapter 5 - Prioritizing Project Proposals; Chapter 6 - Evaluating Critical Parameters in the Process; Chapter 7 - Organizing Development Projects; Chapter 8 - Project Execution and Oversight; Chapter 9 - Small-Scale Trials; Chapter 10 - Development Trials on Large-Scale Equipment Chapter 11 - Managing and Controlling the ProcessChapter 12 - Controlling Raw Materials; Chapter 13 - Complex Manufacturing Situations; Chapter 14 - Human Factors; Chapter 15 - Managing Customer Expectations; Chapter 16 - Proprietary Systems; Back Cover
Sommario/riassunto	Most processed materials retain a memory of their production process at the molecular level. Subtle changes in productionsuch as variations in temperature or the presence of impuritiescan impart performance benefits or drawbacks to individual batches of products. Some product developers have taken advantage of this process dependency to tailor

properties to specific customer needs. In other cases, poorly engineered processes have resulted in serious failures. Process Techniques for Engineering High-Performance Materials explores practical strategies to guide you in systematically developing, improving, and producing engineered materials. The book describes an RandD approach that is common to many material types, from polymers, biochemicals, metal alloys, and composites to coatings, ceramics, elastomers, and processed foods. Throughout, hundreds of examples illustrate successes and disasters in the history of materials development. These examples clearly show how product management and development tactics are constrained by the nature of the production process and the strategy of the company. The author offers practical advice on how to: Foster creativity in an industrial environment and avoid factors that unintentionally suppress technical innovation Develop products when the properties of the product are highly dependent on processing variables Avoid the inevitable scale-up problems that occur on process-dependent materials Get the most out of expensive trial work in a production plant environment Combine products into a systems solution to customer problems Highlighting important rules for product development, this book helps you better understand the mechanics of engineering processed materials and how to adjust your processes to improve performance.