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Titolo	Mechanically Alloyed Novel Materials : Processing, Applications, and Properties / / edited by Shashanka Rajendrachari
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Descrizione fisica	1 online resource (470 pages)
Collana	Advanced Structured Materials, , 1869-8441 ; ; 220
Disciplina	620.16
Soggetti	Metals Condensed matter Ceramic materials Materials - Analysis Composite materials Metals and Alloys Condensed Matter Physics Ceramics Materials Characterization Technique Composites
Lingua di pubblicazione	Inglese
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Nota di contenuto	1. Mechanism of ball milling and the factors affecting the process of milling -- 2. Comparative study of wet and dry milling -- 3. Advanced characterization of mechanically alloyed powders -- 4. An overview of mechanical alloying and other conventional metallurgical methods -- 5. How to achieve high density materials.
Sommario/riassunto	This book provides in-depth information about the evolution of mechanical alloying over the past few decades. It explains how the technology has improved with time and the different types of mechanical alloying processes and their mechanisms to prepare powders. It presents factors affecting the mechanical alloying process followed by an overview and comparison of dry and wet milling. A comparative study of mechanical alloying and other conventional

powder metallurgical methods to achieve maximum density for structure-property relationship is also presented. The book also provides information about modern methods used to characterize the ball milled powders and their consolidation by highly advanced sintering methods. It discusses the processing, properties, and applications of high entropy alloys, ODS stainless steel, shape memory alloys, cermets, iron, copper, zinc, tungsten, aluminum, titanium, magnesium, and ceramic-based alloys. Apart from these topics, the book covers important types of ferrous and non-ferrous alloys that are prepared by mechanical alloying, providing an insight as to why this method is popular and advantageous over other conventional powder metallurgical methods, and discussing the appropriate method for fabricating each type of ferrous and non-ferrous alloys.