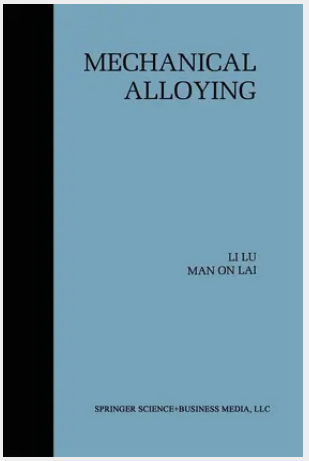
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Mechanical Alloying



Mechanical alloying (or mechanical milling) was invented in the 1970's as a method to develop dispersion-strengthened high temperature alloys with unique properties. With the discovery of formation of amorphous alloys using this technique, it has received new research interest in developing different material systems. Potential applications of this technique have been demonstrated in different areas of materials research. This book is intended as an introduction to mechanical alloying technique used in difference areas. This book contains basic information on the preparation of materials using the mechanical alloying technique. It is useful not only to undergraduate and post-graduate students, but also to scientists and engineers who wish to gain some understanding on the basic process and mechanisms of the process. The book begins with a brief introduction to provide a historical background understanding to the development of the mechanical alloying process. The experimental set-up in the alloying process is important. Currently there are different types of ball mills available. Some of them are specially designed for mechanical alloying process. Since the resultant materials are milling intensity and milling temperature dependent, ball mills should be carefully selected in order to obtain the desired materials and structures. This is discussed in chapter 2. The actual mechanical alloying process is being considered in Chapter 3. As it is essential to understand the use of processing control agents, the physical properties of some commonly used processing control agents are listed.

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