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| | Nota di contenuto | Chemical Kinetics of Solids; Preface; Table of Contents; Symbols and Definitions; 1 Introduction; 1.1 Scope; 1.2 Historical Remarks; 1.3 Four Basic Kinetic Situations; 1.3.1 Homogeneous Reactions: Point Defect Relaxation; 1.3.2 Steady State Flux of Point Defects in a Binary Compound; 1.3.3 The Kinetics of an Interface Reaction; 1.3.4 Kinetics of Compound Formation: A + B = AB; References; 2 Thermodynamics of Point Defects; 2.1 Introduction; 2.2 Thermodynamics of Crystals; 2.2.1 Phenomenological Approach; 2.2.2 Remarks on Statistical Thermodynamics of Point Defects <br> 2.3 Some Practical Aspects of Point Defect Thermodynamics2.4 Point Defects in Solid Solutions; 2.5 Conclusions; References; 3 One- and Two-Dimensional Defects in Crystals; 3.1 Introduction; 3.2 Dislocations; 3.2.1 Strain, Stress, and Energy; 3.2.2 Kinetic Effects Due to Dislocations; 3.3 Grain Boundaries; 3.3.1 Structure and Energy of Grain Boundaries; 3.3.2 Phase Boundaries in Solids; 3.4 Mobility of Dislocations, Grain Boundaries, and Phase Boundaries; References; 4 Basic Kinetic Concepts and Situations; 4.1 Introduction; 4.1.1 |

Systematics of Solid State Chemical Processes

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5.4.1 The Atomistics of Interdiffusion5.4.2 The Kirkendall Effect; 5.4.3 Local Defect Equilibration During Interdiffusion; 5.4.4 Interdiffusion of Heterovalent Compounds; References; 6 Heterogeneous Solid State Reactions; 6.1 Introduction; 6.2 Nucleation and Initial Growth; 6.2.1 Introductory Remarks; 6.2.2 Nucleation Kinetics; 6.2.3 Early Growth; 6.3 Compound Formation; 6.3.1 Formation Kinetics of Double Salts; 6.3.2 Formation of Multiphase Products; 6.4 Displacement Reactions; 6.5 Powder Reactions; 6.5.1 General; 6.5.2 Self-propagating Exothermic Powder Reactions; 6.6 Interface Rate Control

6.7 Thermal Decomposition of Solids

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| Sommario/riassunto | Many different chemical processes take place inside solids or at solid surfaces and interfaces. However, their quantitative description sometimes seems difficult to understand. This book by Professor Schmalzried, author of the eminently successful Solid State Reactions; bridges the gap between the 'physical' and 'chemical' approaches to this subject because it is written in a language which both sides understand. For the first time, a comprehensive coverage of the rapidly developing field of Solid State Kinetics is available.The topics covered in this book go far beyond diffusional tra |