1. Record Nr. UNINA9910777082303321 Autore Saunders N (Nigel) **Titolo** CALPHAD (calculation of phase diagrams) [[electronic resource]]: a comprehensive guide / / by N. Saunders and A.P. Miodownik Oxford: New York, : Pergamon, c1998 Pubbl/distr/stampa **ISBN** 1-281-05911-0 9786611059118 0-08-052843-0 Descrizione fisica 1 online resource (497 p.) Collana Pergamon materials series;; v. 1 Altri autori (Persone) MiodownikA. P (A. Peter) Disciplina 530.4/74 Phase diagrams - Data processing Soggetti Thermochemistry - Data processing 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 and indexes. Nota di contenuto Front Cover; CALPHAD Calculation of Phase Diagrams: A Comprehensive Guide; Copyright Page; Contents; Series preface; Preface; Foreword; CHAPTER 1. INTRODUCTION; CHAPTER 2. History of CALPHAD; 2.1. Introduction; 2.2. The Early Years; 2.3. The Intermediate Years; 2.4. The Last Decade; 2.5. The Current Status of CALPHAD; References; CHAPTER 3. BASIC THERMODYNAMICS; 3.1. Introduction; 3.2. The First Law of Thermodynamics; 3.3. The Second Law of Thermodynamics; 3.4. The Third Law of Thermodynamics; 3.5. Thermodynamics and Chemical Equilibrium: 3.6. Solution Phase Thermodynamics 3.7. Thermodynamics of Phase Equilibria and Some Simple Calculated Phase DiagramsReferences; CHAPTER 4. EXPERIMENTAL DETERMINATION OF THERMODYNAMIC QUANTITIES AND PHASE DIAGRAMS; 4.1. Introduction; 4.2. Experimental Determination of Thermodynamic Quantities; 4.3. Experimental Determination of Phase Diagrams: References: CHAPTER 5. THERMODYNAMIC MODELS FOR SOLUTION AND COMPOUND PHASES; 5.1. Introduction; 5.2. Stoichiometrie Compounds; 5.3. Random Substitutional Models; 5.4.

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Sommario/riassunto

This monograph acts as a benchmark to current achievements in the field of Computer Coupling of Phase Diagrams and Thermochemistry, often called CALPHAD which is an acronym for Computer CALculation of PHAse Diagrams. It also acts as a guide to both the basic background of the subject area and the cutting edge of the topic, combining comprehensive discussions of the underlying physical principles of the CALPHAD method with detailed descriptions of their application to real complex multi-component materials. Approaches which combine both thermodynamic and kinetic models to