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| Nota di contenuto | Sintering of Systems with Interacting Components; Arnold Savitskii ; Brief Annotation; Preface to the English Edition; Preface to the Russian Edition; Introduction; Table of Contents; Table of Contents; CHAPTER 1. SINTERING OF SINGLE PHASES; 1.1. Mechanisms of Sintering; 1.2. Factors Affecting Sintering; CHAPTER 2. PRINCIPAL AND RELATED PROBLEMS; 2.1. Driving Forces for Sintering; Definition of the Term |

"Sintering"; 2.2. Diffusion Interaction between Solid and Liquid Metals; 2.3. Plastic Flow in the Diffusion Zone; 2.4. Growth of Powder Compacts during Liquid-Phase Sintering 2.5. Dilatometry of Powder Compacts during Liquid-Phase Sintering 2.6. Formation of Liquid Phase in Systems with Intermetallic Compounds; CHAPTER 3. VOLUME CHANGES OF TWO-COMPONENT COMPACTS DURING SINTERING; 3.1 Model of Two-Component Powder Compact Being Sintered in the Solid State; 3.2. Volume Changes of Ti-Ni Powder Compacts during Sintering; 3.3. Model of Powder Compact Being Sintered in the Presence of a Liquid Phase; 3.4. Amount of Growth of Powder Compacts during Liquid-Phase Sintering; 3.5. Degree of Densification of Compacts during Liquid-Phase Sintering 3.6. Overall Magnitude of Compact Volume Changes during Liquid-Phase Sintering CHAPTER 4. SINTERING OF SYSTEMS WITH CONSIDERABLE SOLUBILITY IN THE SOLID PHASE; 4.1. Effect of Titanium Particle Size on Compact Growth in the Ti-Al System; 4.2. Dilatometric and Structural Studies of Growth Process in the Ti-Al System; 4.3. Volume Growth as a Method for Obtaining Highly Porous Ti-Al Alloys; 4.4. Volume Changes Exhibited by Al-Zn Compacts; 4.5. Liquid-Phase Sintering of Powder Compacts in the Al-Mg System; CHAPTER 5. SYSTEMS WITH CONSIDERABLE SOLUBILITY OF THE COMPONENTS IN THE SOLID AND LIQUID 5.1. Volume Changes of Compacts in the Cu-Sn System 5.2. Dilatometric and Structural Studies of Liquid-Phase Sintering in the Cu-Sn System; 5.3. Volume Changes in Cu-Al Compacts; 5.4. Aluminium Bronze, Parts made from which Change Little in Size during Sintering; CHAPTER 6. Al-Cu SYSTEM WITH HIGH SOLUBILITY IN THE LIQUID PHASE; 6.1. Volume Changes of Al-Cu Compacts during Sintering; 6.2. Effect of Porosity upon Volume Changes; 6.3. Effect of Aluminium Particle Size; 6.4. Alloy and Structure Formation; 6.5. Sintering in the Presence of a Large Amount of Liquid Phase; 6.6. Exothermal Sintering 6.7. Optimisation of Liquid-Phase Sintering Regimes 6.8. Possibility of Decreasing Compact Growth during Sintering; CHAPTER 7. SINTERING OF ALUMINIUM WITH TRANSITION METALS; 7.1. Liquid-Phase Sintering of the Al-Cr System; 7.2. Liquid-Phase Sintering of the Al-Ti System; 7.3. Liquid-Phase Sintering of the Al-Ni System; 7.4. Liquid-Phase Sintering of the Al-Fe System; CONCLUSION; References

Sommario/riassunto

The aim of this publication is to acquaint those readers who are interested in the fundamentals of powder materials sintering, with the latest scientific achievements which are important to its successful practice. The book contains new information, not previously known in the West, as well as offering a totally fresh view of this vital issue. The work discloses to western eyes a new scientific trend in the science of sintering systems with interacting components; a trend of which many experts are unaware. The new approach will considerably enrich and advance investigations into the theory and