

Table of Contents

Preface

Advanced Materials by Powder Metallurgy - Science and Technology G. Petzow, W.A. Kaysser and J. Kunesch	3
The Preparation of Multiphase Materials through Self-Sustaining Powder Reactions Z.A. Munir	37
Process Design for Solid State Amorphization in High-Energy Ball Milling H. Kimura	47
Synthesis of Multiphase Powder Systems with a Composition Gradient B. Ilschner and D. Delfosse	61
New Powder Production Techniques for Special Applications M. Hohmann, M. Ertl and S. Jönsson	71
Specific Aspects of Sintering of Micropowders R. Pampuch and J. Lis	83
Synergetics of Sintering of Multiphase Metal and Ceramic Alloy Systems G.S. Upadhyaya	95
Constitution and Properties of Two- or Three-Phase Hard Material Composites H. Holleck	107
Phase Relations, Sintering and Microstructure Development in P/M Hardmagnets Based on Fe-Nd-B E.-. Henig	109
Phase Equilibria in RE-Fe-B System at 1000°C M. Uma Devi and K.P. Gupta	111
Use of Sintering Diagrams in Developing Porous Filters from Water Atomized Stainless Steel Powders V.J. Goel, S.N. Malhotra, N.C. Soni, A. Mohan and P. Ramakrishnan	113
The Hypothesis of Constant Relative Responses and its Application to the Sintering Process of Spherical Powders J. Viplava Kumar	125
Consolidation of Rapidly Quenched Powders B.L. Mordike and K.U. Kainer	135
Hot-Isostatic-Pressing for Making Parts from Prealloyed Powders V.K. Chandhok and J.H. Moll	149
Overpressure Sintering - An Investment in Quality and Costs R.E. Bauer	163
Gas Pressure Sintering with Controlled Densification H.U. Kessel and W. Engel	175
Methods, Process and Application of High Pressures and Temperatures on Cemented Carbides and Engineering Ceramics H.N. Seetharam, S.N. Bhat and A.S. Choudhury	185
Structure/Property Relationships in Sintered Heavy Alloys D.V. Edmonds	193
Sintering and Sintered Properties of W-Mo-Cu-Ni Heavy Alloys V. Srikanth and R. Roy	207
The Dependence of Sintered Properties on the Cooling Rate in the Activated Sintered W-Compact I.H. Moon, S.H. Cho, M.J. Suk and S.C. Yoo	217
Liquid Phase Sintering in High Speed Steels K.M. Kulkarni	223
The Properties and Structure of Ag-Sn Compacts during Liquid Phase Sintering T. Piszczek and S. Stolarz	235
Sintering and Desintering of Prealloyed Cu-Sn Powder Compacts under the Influence of Various Driving Forces H.S. Badari Narayana and M.M. Godkhindi	243

Technological Evaluation of Aluminium Bronze Friction Material V. Sridhara and K. Gopinath	251
Sintering of Lead Bronze Containing Tin and its Based Porous Bearings S. Kumar, G.S. Upadhyaya and M.L. Vaidya	259
Elevated Temperature Deformation Response of Powder Processed Aluminum Alloys with Intermetallic Dispersions G.S. Murty	269
P/M Al-Si-Al₂O₃ Composite for Wear and High Temperature Resistance Applications J. Duczcyk, D. Bialo, T.L.J. de Haan and R. Yoshimura	281
Preparation and Properties of 6061 Aluminium Alloy Based P/M Particle Composites A.K. Jha, S.V. Prasad and G.S. Upadhyaya	283
Sintered 6061 Aluminium Alloy Solid Lubricant Particle Composites: - Sliding Wear and Mechanisms of Lubrication A.K. Jha, S.V. Prasad and G.S. Upadhyaya	289
Effect of Compaction Pressure on the Sinterability of Rapidly Solidified Al-Si Alloy S.K. Mukherjee and G. De	299
Consolidation Studies of Ti-6Al-4V Powders Obtained by Elemental Blending N.C. Birla and W. Krishnaswamy	307
Synergistic Alloying-Sintering Effects in Iron-Silicon-Phosphorus Compacts X. Qu, J.A. Lund and S. Gowri	319
Influence of Mo on Steam Treatment of Sintered Steels Based on Atomized Iron Powder Containing Phosphorus N.A. Siddiqi and M. Hamiuddin	331
Sintering Characteristics of Iron-Copper-Carbon System R.R. Dash, S.K. Singh and A. Nag	339
Effect of Minor Chemistry Variations on the Structural and Mechanical Behaviour of a PM Nickel Base Superalloy K.K. Sharma, P.S. Misra, D. Banerjee, S.N. Tewari and N.C. Birla	347
Liquid Phase Assisted Sintering of 316L Austenitic Stainless Steel-Y₂O₃ Composites S. Lal and G.S. Upadhyaya	361
P/M Components for Valve Train Applications in Automotive Engines B. Krentscher, V. Arnhold and K.D. Krishnanand	369
Effects of Small Amounts of Metal and Al₂O₃ on Toughening of Ti(C,N)-Cr₃C₂ Ceramics T. Watanabe, K. Shoubu, T. Doutsu and Y. Kai	383
Processes for Recycling Cemented Carbides and Some Aspects of the Influence of Recycled Materials on Finished Products B. Aronsson and H. Pastor	397
Effect of Carbide Powder Type and Refractory Compound Additions on Properties of Sintered WC-10 Co Hard Metals D. Basu, S.K. Bhaumik and G.S. Upadhyaya	409
Sintering Technology in the Manufacture of Nuclear Fuels P.R. Roy and H.S. Kamath	415
'Additives' in Sintering Advanced Ceramic Nuclear Fuel Pellets C. Ganguly	433
High-Strength Silicon Carbides by Hot Isostatic Pressing S. Dutta	445
Alumina-SiC Composites from Kaolinite-Carbon Precursors by Hot Pressing M.R. Penugonda and A.C.D. Chaklader	456
Sialon Ceramics Sintered with Different Metal Oxide Additives T. Ekström	471
Microstructure and Oxidation Behaviour of Boron Carbide Based Ceramics Doped with Polysilane Derived Silicon Carbide R. Lörcher, K. Strecker, R. Riedel, R. Telle and G. Petzow	479
Effect of Temperature on the Sintering Zirconia Based Mixed Oxide Powder Compacts P. Das	493
In Situ Growth of Ti-Rich Reinforcement in Mg-PSZ for Improved Thermal Shock Resistance P.R. Krishnamoorthy, P. Ramaswamy and B.H. Narayana	501

Powder Metallurgy and Ceramic Copper Oxide Superconductors N.C. Kothari	509
Sintering and Microstructure Evolution in ZnO-Multiphase Ceramics M. Trontelj and D. Kolar	537
Non Ohmic Behaviour and Microstructure Control of Rare Earth Doped ZnO Containing K₂O H.K. Varma, K.P. Kumar, K.G.K. Warriar and A.D. Damodaran	549
High Voltage Dy and Nd Doped BaTiO₃ Ceramic Capacitor Dielectric from Commercial Grade Raw Materials P.R. Krishnamoorthy, P. Ramaswamy and B.H. Narayana	555
Ceramic Capacitor Dielectric Composition Analysis - A Case Study P.R. Krishnamoorthy, P. Ramaswamy and B.H. Narayana	563
Case Studies in R & D Management Systems in a Ceramic Producing Complex D. Ramakrishnan and K.A. Srinivasan	569
Performance of Tabular Alumina Pebbles in Indian MHD Air Preheaters K. Thiagarajan, A.B. Datta and N. Ram Mohan	577