Table of Contents

Preface

Ultrasonic Gas Atomization: Pros and Cons	
M. Kumar and A.B. Pandey	1
Surface Oxidation of Steel Powder during Atomization L. Nyborg and I. Olefjord	9
Chemical Characterization of Ultrapure Refractory Metals for the Electronics Industry - Facts and Fiction	
H.M. Ortner, P. Wilhartitz and M. Grasserbauer	21
Influence of Flow Variables and Powder Characteristics on the Flow of Powders Paramanand and P. Ramakrishnan	47
Preparation and Characterization of Partially Stabilized Zirconia Powders A. Sadhu, I.S.R. Sastry, M.J. Patni, T.R. Rama Mohan and P. Ramakrishnan	65
Progress in Understanding Sintering W. Schatt and E. Friedrich	73
Sintering on the Electronic Level M.M. Ristić, L.F. Pryadko and D.C. Stefanovic	89
Solid State Sintering of MIG Break Pads-Equipment Design N.M. Parthasarathy	95
Sintering Rate and Morphological Changes of Silicon Nitride Densified with Nitrogen Rich Liquids	
P.K. Das and J. Mukherji	109
Sintering and Properties of SiAlON S. Bandopadhyay and J. Mukherji	121
Consolidation of Rapidly Solidified Magnesium Alloy Powder S. Krishnamurthy, I. Weiss and F.H. Froes	135
Observations on Microstructural Development and Densification during Hiping of Ceramics and Metals W.A. Kaysser, M.H. Aslan and G. Petzow	147
Ceramics Fabrication by Injection Moulding Technique - Selection of Materials and Fabrication Experience D.D. Upadhyaya, S.K. Roy, C.K. Gupta, R.K. Fotedar and R.N. Arya	159
Injection Moulding of P/M Structural Steels D.A. Karandikar and P. Ramakrishnan	171
Structure Property Correlation of As-HIPed and HIP + Forged P/M Alloy Nimonic AP-1 T.L. Prakash, M.C. Somani and E.S. Bhagiradha Rao	179
Mechanical Alloying in the Titanium-Magnesium System R. Sundaresan and F.H. Froes	199
Hot Isostatic Pressing of Metal Powders L. Buekenhout and P. Alt	207
HIP - Is the Future Bright P. Ray and P.K. Pal	225
Lightweight Metals Using Rapid Solidification F.H. Froes, Y.W. Kim and S. Krishnamurthy	249
Powder Metallurgy - Key Technology for Tomorrow's High Strength Materials N.C. Kothari	275
Surface Studies of Rapidly Solidified Aluminium Alloy Powder T.J. Carney, J.E. Castle, P. Tsakiropoulos, M.B. Waldron and J.F. Watts	291
Characterization of Rapidly Solidified Ti ₃ Al Base Alloys G. Venkataraman, A.G. Jackson, K.R. Teal and F.H. Froes	303
Rapid Solidification Processing of Al-Fe-Ni Alloys - An Evaluation R.M. Anklekar, S.A. Raman, V. Gopinathan and P. Ramakrishnan	319
An Experimental Approach toward the Definition of a Criterion of Suitability to Sizing G.F. Bocchini	327

Driving Performance of Sintered Iron-Tin and Iron-Tin-Copper Porous Bearings T. Watanabe and Y.C. Kim	341
Aluminium Powder Ring Preform Deformation Behaviour and Rupture Tests T.S. Rao and K.S. Pandey	351
Anisotropic Spring-Back and Shrinkage of Iron Powder Compact H. Kuroki	365
Mechanical Anisotropy in Extruded PM Copper-Base Alloys E. Aernoudt, R. Garvin-Salazar, P. van Houtte, M. Follon and P. Neutjens	373
Anomalous Volumetric Changes in Welded Monometal P/M Parts H.S. Badari Narayana and M.M. Godkhindi	387
Aluminium P/M Parts - Materials, Production and Properties E.M. Daver, W.J. Ullrich and K. Balubhai Patel	401
Effect of Boron on the Structure and Properties of a PM Nickel Base Superalloy K.K. Sharma, P.S. Misra, N.C. Birla and S.N. Tewari	429
Investigations on Dual Phase Steel through P/M Route R. Anand, A.N. Tiwari and P. Ramakrishnan	443
The Influence of Antimony Additions on Sintered Iron-Copper Bearing Materials R. Verghese and K. Gopinath	457
Salient Characteristics of High Temperature Forging of Ferrous Powder Preforms K.S. Pandey	465
Steam Treatment of Sintered Steels Based on Atomized Powder Containing Phosphorus and Copper	
N.A. Siddiqi and M. Hamiuddin	487
The Influence of SiC Content on Sintered Aluminium Bronze Friction Materials V. Sridhara and K. Gopinath	503
Effect of Processing Parameters on the Pore Morphology and Corrosion Properties of Sintered 316L Stainless Steel T. Raghu, S.N. Malhotra and P. Ramakrishnan	513
Processing-Properties Relationship in Cemented Carbide B. Aronsson	529
Attritor Milling of Carbide-Binder Systems D.R. Upadhye, D.M. Deo, S. Basu, V. Gopinathan and P. Ramakrishnan	545
On the Wear Mechanism in Sintered Titanium Carbide Cutting Tools B.J. Ranganath	555
Manufacturing and Properties of Sintered High Speed Steel Products L. Albano-Muller, R. Wahling, N. Katrak and R. Chattopadhyay	565
The High Speed Steel Preform Process - Mechanical Pressing and Sintering to Full Density D.R. Anand	575
High Temperature Superconductivity in the Oxidic System C.M. Srivastava	583
Gel Processed Transparent Alumina V. Saraswati	593
Influence of Wollastonite on Processing and Dielectric Behaviour of Barium Titanate R.K. Yadavalli and R.K. Sinha	599
Evolution of Microstructure in PZT Ceramics with Supervalent, Isovalent and Subvalent Cation Additions R. Lal, R.V. Krishnan and P. Ramakrishnan	609
Effect of TiO ₂ and Fe ₂ O ₃ on Mullite Forming Al ₂ O ₃ -SiO ₂ Mixtures L.K. Sharma and G.N. Agrawal	619
Potential Projections for Improved P/M Techniques in Nuclear Programme K. Balaramoorthy	641
Recent Developments in P/M Techniques Used in Fabrication of Plutonium Bearing Ceramic Nuclear Fuels P.R. Roy and H.S. Kamath	651
Activated Sintering of Thoria P. Balakrishna, B.P. Varma, R. Rajendra, T.S. Krishnan, K. Balarama Morthy, T.R. Rama Mohan and P. Ramakrishnan	669

Morphological Analysis of Particles and Microstructure J.K. Beddow	677
Computer Program for the Selection of PM Structural Materials B. Williams	697
Computer Aided Design and Drafting of PM Tool Elements G. Devanathan and K.D. Krishnanand	707
Development of a Statistical Package for Evaluating Process Variables Controlling Carbon Content of P/M Ferrous Alloys N.P. Gantayet and P. Ramakrishnan	717
Iron Base Alloys Sintered with Composite Powders Prepared by Electroless Plating S. Kohara and K. Tatsuzawa	733
Dispersion Hardened Copper as an Electrode Material for Spark Erosion Machining D. Dutta, H.T. Shivaprakash and C.G. Krishnadas Nair	739
Studies on Mechanically Alloyed Aluminium (7010) - SiC Particulate Composites G. Mahanty, A.N. Tiwari, V. Gopinathan and P. Ramakrishnan	747
Development and Evaluation of Silicon Carbide Particulate Reinforced Aluminium Composites	
D. Dutta, C.G. Krishnadas Nair and K. Chattopadhyay	755
Studies on the Hot Pressing of SiC Fibre Reinforced Aluminium Composites S.A. Iyer, S.N. Patankar, V. Gopinathan and P. Ramakrishnan	769
Processing and Mechanical Properties of Carbon-Carbon Composites L.M. Manocha, O.P. Bahl and Y.K. Singh	775
Powder Metallurgy Research at the University of Surrey N.J.E. Adkins, P.S. Goodwin, P. Tsakiropoulos and M.B. Waldron	783
Education: A Key Factor in the Development of PM Technology E. Mosca	793
Developments in Hydraulic Powder Compacting Presses V.G. Kamat	801
Application of Sonon/Thermosonon Model in Powder Metallurgy in Space Technology M.K. Mukherjee	807
Powder Metallurgy as an Advanced Technology to Manufacture Machine Elements O.V. Roman	815
North American Powder Metallurgy at the Turn of the New Century K.H. Roll	825
High Strength Sintered Metallic Components P. Ramakrishnan	835
Structural Ceramics P. Ramakrishnan	839