

FIVE-YEAR INDEX

Five-year Index

International Journal of Powder Metallurgy

This 5-year index of the 175 articles published in the Journal from 1991-1995 provides a useful review of worldwide P/M developments and trends. The index includes subjects and authors.

ARTICLE INDEX

Title	Author(s)	Page No.
Volume 27, No. 1, January 1991		
Sintering Behavior and Strength of Fe-Si-P Compacts	X. Qu S. Gowri J.A. Lund	9
Composition, Microstructure and Mechanical Property Relations in Sintered Stainless Steel	A. Molinari B. Tesi A. Tiziani L. Fedrizzi G. Straffelini	15
Liquid Phase Sintering of Binary Copper Alloys	G.S. Upadhyaya A. Bhattacharjee	23
Powder Fabrication of Monolithic and Composite NiAl	D.E. Alman N.S. Stoloff	29
Improvement of P/M NiAl by Ti and Nb Additions	W.A. Kaysser R. Laag J.C. Murray G.E. Petzow	43
Processing and Properties of Silver-Tin Oxide-Indium Oxide Electrical Contact Materials	A. Verma A. Roy T.R. Anatharaman	51
Powder Metallurgy at the Indian Institute of Technology, Kanpur	G.S. Upadhyaya	59
Volume 27, No. 2, April 1991		
Iron Powder for Metal Injection Molding	J.E. Japka	107
Powder Selection for Shape Retention in Powder Injection Molding	C.M. Kipphut R.M. German	117
Vacuum Binder Removal and Collection	C.W. Finn	127
Practical Application of Flow Analysis in Metal Injection Molding	J.R. Gaspervich	133
Processing Conditions and Tooling for Powder Injection Molding	K.F. Hens D. Lee R.M. German	141
Injection Molding of Silicon Carbide: Statistical Design of Experiments	T.J. Whalen W. Trela J.R. Baer	155
The Emerging Market for Rapidly Solidified Materials	T. Abraham	161
Powder Metallurgy Technology Review – 1991	P.K. Johnson	163
Metal Injection Molding at Advanced Forming Technology	J.R. Gaspervich R.C. Drewes	169

Volume 27, No. 3, July 1991

Impact Atomization of Liquid Metals	Y. Wanibe T. Itoh Y. Matsui	195
A New Powder Compaction Equation	Ge Rong-de	211
Influence of Compression on the Yielding of Porous Materials	U.P.Å. Ståhlberg H. Keife	217
P/M Processing of Al-SiC Composites	V.V. Bhanuprasad R.B.V. Bhat A.K. Kuruvilla K.S. Prasad A.W. Pandey Y.R. Mahajan	227
Structure and Properties of Spray Formed Stainless Steel	I. Ucok T. Ando N.J. Grant	237
The Role of Nickel in Iron Powder Injection Molding	H. Zhang R. M. German	249
Austempering of Sintered Low Alloy Steels	M. Kamada H. Miura Y. Tokunga	255
Fabrication of Composite Parts by Sinter Bonding	T. Tabata S. Masaki K. Kitagawa Y. Matsouka K. Minami	265
Competition Winners Show Off P/M's Reliability and Performance	P.K. Johnson	275

Volume 27, No. 4, October 1991

High Temperature Sintering: A Step in the Continuous Improvement Cycle	H.I. Sanderow	309
Midwest Sintered Products Corporation: A Profile of Change	H.A. Tews	311
Fundamentals of High Temperature Sintering: Applications to Stainless Steels and Soft Magnetic Alloys	C. Lall	315
Ultrahigh Strength Ferrous Sintered Components	O. Furukimi K. Yano S. Takajo	331
Enhanced Sintering and Property Improvement in Ferrous P/M Compacts	D.S. Madan	339
Tungsten Carbide Hard Metals Cemented with Ferroalloys	T. Farooq T.J. Davies	347
Improved Properties and Performance of Low Alloy Steel Parts via High Temperature Sintering	K. Shimada	357
P/M Joining Processes, Materials and Techniques	J.A. Hamill, Jr.	363

Volume 28, No. 1, January 1992

Jetting Phenomenon on Powder Injection Molding	N. Piccirillo D. Lee	13
Effect of Additives on the Sintered Properties of Copper Compacts	M.J. Drombroski A. Lawley D. Apelian	27
Property Control in Sintered Copper: Function of Additives	J.F. Sweet M. J. Drombroski A. Lawley	41
Defect Healing During Sinter/HIP	A.H. Frisch W.A. Kaysser G.E. Petzow	53
Explosive Compaction of Al-SiC Composites	K. Sivakumar Y.R. Mahajan N. Ramakrishnan V.V. Bhanuprasad	63
International Standards and the United States P/M Industry	L.F. Pease, III	69

Emerging P/M Technologies in the USA	R.M. German	77
P/M in Japan	T. Kohno	87
	R. Watanabe	
	K. Shinohara	
	S. Nogami	
United Kingdom: Research, Development and the P/M Industry	J.V. Wood	93
	P.R. Brewin	
<hr/>		
Volume 28, No. 2, April 1992		
Process Control Strategies in Powder Metallurgy	P. Mathur	121
	A. Lawley	
Intelligent Control of Particle Size Distribution During Gas Atomization	S.D. Ridder	133
	S.A. Osella	
	P.I. Espina	
	F.S. Biancaniello	
On-Line Measurement of Powder Size Distribution in Zinc Atomization	H. Henein	149
	P.L. Meyer	
	D.J. Holve	
	M.A. Kuhni	
Intelligent Processing in Hot Isostatic Pressing	R.J. Schaefer	161
Extrusion of P/M Composites in the Semi-Solid State	S.D. El Wakil	175
P/M Innovations Drive Industry Growth	P.K. Johnson	183
Powder Metallurgy in Finland and Sweden	G. Wastenson	189
	O. Grinder	
Powder Metallurgy in India	G.S. Upadhyaya	196
Powder Metallurgy at the University of Idaho	F.H. Froes	202
	C. Suryanarayana	
<hr/>		
Volume 28, No. 3, July 1992		
Exploring New P/M Horizons	D.G. White	229
P/M Applications Diversifying into New Markets	P.K. Johnson	233
Powder Metallurgy in Australia	P.J. Morris	243
Powder Metallurgy in Canada	M.A. Clegg	249
	J.M. Capus	
	R.H. Angers	
	J.A. Lund	
P/M Forging: An Advancing Process	J.H. Badendieck	257
	M. Marra	
	J.C. Skurka	
Calculation of the Pore-Free Density of P/M Steels: Role of Microstructure and Composition	D.W. Smith	259
Pore-Free Density of Forged Steel: Comparison of Measured and Calculated Values	D.W. Smith	271
	S.J. Mashl	
Properties of Powder Forged Steels Containing Admixed MnS	S.J. Mashl	279
	D.W. Smith	
Impact Forging of Powder Preforms: Current Assessment	A.A. Hendrickson	289
	P.M. Machmeier	
	D.W. Smith	
A Model for Densification by Sintering of Bimodal Particle Size Distributions	R.M. German	301
	M. Bulger	
Densification of γ -TiAl Powder by Hot Isostatic Pressing	J.C. Beddoes	313
	W. Wallace	
	M.C. de Malherbe	
<hr/>		
Volume 28, No. 4, October 1992		
Lubricant Removal in Metal Powder Compacts	K-S. Hwang	353
	K-H Lin	
Catalytic Effects During Binder Removal from Metal Powder Compacts	H.H. Angermann	361
	F.K. Yang	
	O. Van der Biest	

Selective Laser Sintering of Metals and Ceramics	D.L. Bourell H.L. Marcus J.W. Barlow J.J. Beaman	369
Development and Properties of New Tungsten-Based Composites for Penetrators	A. Bose H.R.A. Coque J. Langford, Jr.	383
Axial Powder Pressing Technique	E. Fischer	395
Instrumented Impact Testing of Sintered Metal Test Specimens	R. A. Shimansky J. Collins J.G. Orbison	401
The U.S. Advanced Ceramics Industry: The Growth Continues	T. Abraham	409
Powder Metallurgy in Korea: Status Report	I-H. Moon W-J. Lee J-W. Lee	413
Powder Metallurgy Education at Dresden University of Technology	E. Friedrich	417
Volume 29, No. 1, January 1993		
A New Continuous Feedback Control System for Sintering Atmospheres	M.A. Phillips	15
Novel Non-Cryogenic Nitrogen-Based Atmospheres for the P/M Industry	D.L. Mitchell, Jr. D.J. Bowe J.G. Marsden D. Garg K.R. Berger	21
Electronic Flow Meter and Valve Applications in the P/M Industry	J.E. Powalisz	29
Compaction: Process Control in the Next Decade	L. Wolberg	35
User-Friendly Press Controls	W.R. Gasbarre	39
Designing and Building Quality Compacting Tooling for P/M Applications	M. Booth	43
Evaluation of Injection Molded 17-4PH Stainless Steel Using Water Atomized Powder	R.M. German D. Kubish	47
The Growing U.S. Market for Advanced Ceramic Powders	T. Abraham	63
Powder Metallurgy in China	Z. Xie J. Li	65
Powder Materials Engineering at IIT	P. Nash S. Copley	69
Volume 29, No. 2, April 1993		
Quality Planning in P/M	G.T. Shturtz	105
Continuous Improvement in P/M Processing via Statistical Process Control	R.H. Slattery	109
Physical Behavior of Water-Atomized Iron Powders: Effects of Relative Humidity and Particle Size	J.E. Peterson W.M. Small	121
Physical Behavior of Water-Atomized Iron Powders: Particle Size Distribution and Apparent Density	J.E. Peterson W.M. Small	131
Properties of Sintered T15 and T42 High Speed Steels	P.K. Kar B.P. Saha G.S. Upadhyaya	139
Liquid Dynamic Compaction of Aluminum Alloy 7150	X. Duan Y. Hao M. Yoshida T. Ando N.J. Grant	149
Controlled Porosity in Spray Formed Phosphor Bronze	P. Kelly C.R. Wong A.L. Moran	161
P/M on the Rebound	P.K. Johnson	171
P/M and Particle Materials Research: Ames Laboratory and Iowa State University	I.E. Anderson	177

Volume 29, No. 3, July 1993

Counter Rotating Fluid Atomization	K.P. Copper J.D. Ayers	215
Evaluation of Solubility in Powder Injection Molding Binders	G.B. Kupperblat C.I. Chung	229
Low Temperature Debinding Kinetics of Two-Component Model Systems	H.H. Angermann O.O. Van Der Biest	239
Effect of Molding Conditions on Residual Stresses in Powder Injection Molding	B. Kostic T. Zhang J.R.G. Evans	251
Nondestructive Evaluation of WC-Co Composites Using Magnetic Properties	Z. Fang J.W. Eason	259
Processing, Microstructure and Properties of 2124 Al-SiC _p Composites	M.K. Jain V.V. Bhanuprasad S.V. Kamatt A.B. Pandey V.K. Varma B.V.R. Bhat Y.R. Mahajan	267
P/M Excels in Critical Applications	P.K. Johnson	277
The Particulate Materials Center: Pennsylvania State University	R.G. Cornwall G.L. Messing R.M. German	283

Volume 29, No. 4, October 1993

The Osprey Process: Principles and Applications	A.G. Leatham A. Lawley	321
Evolution of Microstructure in Spray Casting	S. Annavarapu R.D. Doherty	331
Application of Neural Networks in Spray Forming	R.D. Payne M.A. Matteson A.L. Moran	345
Fundamentals of Dry Powder Blending for Metal-Matrix Composites	J.O.G. Parent J. Iyengar H. Henein	353
Improved Sintering Response of Vanadium-Rich High Speed Steels	I. Urrutibeaskoa S. Jauregi F. Fernandez S. Talacchia R. Palma V. Martinez J. Urcola	367
Optimization of Toughness in Impact Forged 46XX Steels	P.M. Machmeier D.W. Smith A.A. Hendrickson	379
Powder Product Research: University College, Swansea	R.J. Gowland W.P. Lewis B. Wilshire	393

Volume 30, No. 1, January 1994

Particulate Materials Research and Education at Worcester Polytechnic Institute A Multidisciplinary Approach	D.C. Zenger C.J. Kasouf P.U. Gummesson	9
The P/M Industry and Progress in China	L. Wang X. Chen S. Zhang	21
Speeding Technical Solutions in Particulate Technology With Design of Experiments and Related Statistical Methods	C.I. Whitman	31
New Compaction Equation for Powder Materials	S. Li P.B. Khosrovabadi B.H. Kolster	47

Compaction and Sintering of Ultrafine Powders	R.A. Andrievski	59
Ultrasonic In Situ Monitoring of Sintering in Alumina	P. Komarenko R.W. Messler H.A. Scarton	67
Evaluation of Atomization by the Rapidly Spinning Cup Process	K.P. Cooper J.D. Ayers	77
Chemically Activated Liquid Phase Sintering of Tungsten-Copper	J.L. Johnson R.M. German	91
Constitutive Behavior of a Powder/Binder System: Molding and Thermal Debinding	J.C. Moller D. Lee	103
Wick-Debinding in Powder Injection Molding	R. Vetter M.J. Sanders I. Majewska-Glabus L.Z. Zhnag J. Duszczuk	115

Volume 30, No. 2, April 1994

ISO 9001 in Ferrous Powder Manufacturing	Y. Trudel A. Galipeau	151
Recent Developments in Ferrous Powder Metallurgy Alloys	W.B. James	157
Recent Developments in Alloy Powders for High Performance Structural Applications	J.H. Reinshagen R.P. Mason	165
New Powders for Electrical Brushes and Microbearings	G.M. Rankinen D.F. Berry	173
Recent Developments in Nonferrous Powders	W.J. Ullrich K. Patel R. Gotham J.V. Marino	179
ISO 9000 and Its Impact on the P/M Industry	M.K. Tarby	185
Another Strong Year for P/M	P.K. Johnson	199
Powder Metallurgy Processing of Thermal Management Materials for Microelectronic Applications	R.M. German K.F. Hens J.L. Johnson	205
Powder Metallurgy at the School of Mines, Madrid	J.M. Torralba L.E.G. Cambronero	217
Analysis of Temperature Effects During Cooling in Powder Injection Molding	R.T. Fox D. Lee	221
Applications of Mold Filling Simulation to Powder Injection Molding	L.A. Najmi D.Lee	231

Volume 30, No. 3, July 1994

Outstanding P/M Applications	P.K. Johnson	269
Powder Metallurgy Main Bearing Caps for Automotive Engines	T.M. Cadle M.A. Jarret W.L. Miller	275
Heat Treatment and Mechanical Behavior of Sintered Fe-C-P Steels	A. Molinari G. Straffellini R. Canteri	283
Effect of Hot Isostatic Pressing on the Mechanical Properties of Copper-Infiltrated Low Alloy Steels	S. Pelletier L. Champoux B. Champagne	293
Microstructure Control in Alloy Steel Powders	K. Sridharan J.H. Perepezko	301
Reactive Sintering of NbAl ₃	P.I. Ferreira R.M. Leal Nefo	313
Modeling of the Liquid Dynamic Compaction Spray Process	C-Y.A. Tsao N.J. Grant	323
Structure and Properties of Spray Formed 7150 Containing Fe and Si	J.B. Plies N.J. Grant	335

Volume 30, No. 4, October 1994

Powder Processing in the Institute of Technical Sciences, Belgrade An Investigation of Powder Compaction Processes	D.P. Uskokovic D.T. Gethin V.D. Tran R.W. Lewis A.K. Ariffin	375 385
Dimensional Control in the Sintering of Iron-Copper-Carbon Via Particle Surface Area	A. Griffo R.M. German	399
Desulfurization of 316L Stainless Steel Containing MnS During Sintering	K.S. Hwang C-H Chiou	409
Production of Bronze-Coated Steel Composite Powders	R. Tremblay R. Angers R. Potvin	413
Metal Powder Production by Centrifugal Atomization	C. Dogan S. Saritas	419
Inverted Disk Centrifugal Atomization of 2024	R. Angers C. Dude R. Tremblay	429
Supersolidus-Transient Liquid Phase Sintering Using Superalloy Powders	R. Tandon R.M. German	435
Removal of Low Molecular Weight Components in Thermal Debinding of MIM Compacts	H-H Angermann O. Van Der Biest	445

Volume 31, No. 1, January 1995

High Density Processing of High Performance Ferrous Materials P/M at Delft University of Technology, The Netherlands	H.G. Rutz F.G. Hanejko J. Zhou R. Vetter J. Duszczuk	9 19
Optimization of Nitrogen/Hydrogen Sintering Atmosphere Composition for Carbon Steel	D.J. Bowe K.R. Berger J.G. Marsden D. Garg	29
Macro-Segregation Diagram for Dry Blending Particulate Metal-Matrix Composites	J.H. Bytnar J.O.G. Parent H. Henein J. Iyengar	37
Relation Between Pore Structure and Fatigue Behavior in Sintered Iron-Copper-Carbon	K.D. Christian R.M. German	51
Sintering in the Copper-Tin System - Part I: Identification of Phases and Reactions	N.N. Acharya P.G. Mukunda	63
Sintering in the Copper-Tin System - Part II: Alloying Behavior	N.N. Acharya P.G. Mukunda	73
Sintering in the Copper-Tin System - Part III: Influence of Variables	N.N. Acharya P.G. Mukunda	81

Volume 31, No. 2, April 1995

Powder Metallurgy Research at RIST and POSTECH, Korea	S. Ahn N.J. Kim	105
Powder Metallurgy Enjoys Another Good Year	P.K. Johnson	113
Activated Basket Anodes from Nickel-Iron Powder: Production of Composite Nickel-Iron Anodes	I.J. Bera R.C. Flann K.J. McDonald	121
Magnets and Magnetic Materials: A Technical Economic Analysis	T. Abraham	133
Preparation of Fine Metal Powders Using a Confined Low Pressure Nozzle	C. Subramanian P. Mishra A.K. Suri	137
Centrifugal Atomization/Substrate Quenching of Rapidly Solidified Particles	K-Y. Shue J-W. Ye K-S. Liu	145

Powder Metallurgy Processing of Dual-Phase Fe-Al Intermetallics	Y-L. Jeng R.W. Hayes J. Wolfenstine E.J. Lavernia	155
Tensile Properties of Nickel Aluminide Alloys and Composites Fabricated by Hot Isostatic Compaction	R.M. German A. Bose G. Camus	167
Volume 31, No. 3, July 1995		
Spray Forming R&D at Drexel University	R. Knight R.W. Smith A. Lawley	205
Award Winning P/M Parts	P.K. Johnson	215
Spatial Anisotropy of Permeability in Sleeve Bearings	K.M. Cieslicki K. Krzeminski	221
Cold Isostatic Pressing of Brown Metal Injection Molded Parts	I-H. Moon K-M. Choo M-J. Suk	231
Powder Metallurgy of FeSi ₂ and Higher Manganese Silicide for Thermoelectric Energy Conversion	E. Grob	239
A Model for the Mechanical Properties of Hot Isostatically Pressed Rapidly Solidified Stainless Steel Powder	W. Kim J.G. Byrne	247
Powder Injection Molding Using Water Atomized 316L Stainless Steel	L. Cai R.M. German	257
The Infrared Transmission Performance of Hot Isostatically Pressed Zinc Sulphide	G.J. Reddy E.S.B. Rao	265
Volume 31, No. 4, October 1995		
The University of Nottingham: A European Center for Powder Metallurgy	J.R. Moon J.V. Wood	303
Effect of Infiltration on the Mechanical Properties and Corrosion Resistance of Austenitic Stainless Steels	F. Velasco J.M Torralba J.M Ruiz-Roman L.E. Garcia-Cambronero J.M. Ruiz-Prieto	309
Fracture Toughness and Fatigue Crack Growth Response of Copper Infiltrated Steels	E. Klar D.F. Berry P.K. Samal J.J. Lewandowski J.D. Rigney	317
Mechanical Properties of Extruded Rapidly Solidified Al-Fe-Ce: Effect of Aspect Ratio and Post-Extrusion Rolling	K.N. Ramakrishnan H.B. McShane T. Sheppard	325
Powder Metallurgy Fabrication of Metal Matrix Composites Using Coated Fillers	P. Yih D.D.L. Chung	335
Production of Fine Metal Powders by Ultrasonic Standing Wave Atomization	O. Andersen P. Schreckenber K. Bauckhage	341
A Lumped Parameter Analysis of Powder Injection Molding	M.F. Aksit D. Lee	351
Injection Molding of Gas and Water-Atomized Stainless Steel Powders	A. Nylund T. Tunberg H. Bertilsson E. Carlstrom I. Olefjord	365