

FIVE-YEAR INDEX – ARTICLE INDEX

TITLE	AUTHOR(S)	PAGE
<u>VOLUME 32, NUMBER 1, JANUARY 1996</u>		
High Performance Microencapsulated Powders for Various P/M Applications Particulate Materials Research and Applications at Gazi University, Turkey	D.E. Gay S. Saritas S. Ozbilen A. Durmaz Y. Ercan	13 27
Effect of Ceramic Particles on the Mechanical Properties of M3/2 High Speed Steel	M. Oliveira J.D. Bolton	37
Effect of Pb Additions on the Friction and Wear of Sintered Fe-Cu-Sn-MoS ₂	M. Chandrasekaran P. Singh	51
Preparation of Nickel Submicron Powder by Ultrasonic Spray Pyrolysis	S. Stopic I. Ilic D.P. Uskokovic	59
<u>VOLUME 32, NUMBER 2, APRIL 1996</u>		
Powder Metallurgy in Canada	Y. Trudel	105
P/M Trends in India	R. Angers G.S. Upadhyaya	117
Powder Metallurgy in Spain	C. Molins, Jr.	127
Powder Metallurgy at KIMM, Korea	H. Chung B. Kim	137
P/M Industry Trends	P.K. Johnson	145
Production and Characterization of Mono-Sized Sn-Pb Alloy Balls	P. Yim J-H. Chun T. Ando V.K. Sikka	155
Near Infrared Measurements in Close-Coupled Gas Atomization	R.S. Miller S.A. Miller S.D. Savkar D.P. Mourer	165
Porous Sleeve Bearings: Air and Oil Permeability	K.M. Cieslicki K. Krzeminski	175
<u>VOLUME 32, NUMBER 3, JULY 1996</u>		
Powder Metallurgy in Sweden	J. Tengzelius O. Grinder	203
Powder Metallurgy in Austria	G. Kneringer R. Stickle	213
P/M in North America	D.G. White	221
Powder Metallurgy Product and Process Development at Concurrent Technologies Corporation	H.A. Kuhn R.F. Dax	229
Award Winning P/M Parts	P.K. Johnson	237
Superficial Densification of P/M Parts Using Ultrasonic Shot-Peening	H. Chardin F. Grillon M. Jeandin M. Frainais	245
Hot Forging of a P/M Connecting Rod: Three-Dimensional Computer Model	A.G.K. Jinka M. Bellet	255

TiSi ₂ Composites Reinforced With In Situ Synthesized TiC and SiC	J. Wen K. Vedula K. Yellamanchili	259
Lattice Diffusion From the Grain Boundary in the Sintering of Metal Powders	R.L. Eadie X. Chen	265
<u>VOLUME 32, NUMBER 4, OCTOBER 1996</u>		
P/M in Italy: Present Status and Prospects	G.F. Bocchini	307
P/M in the United Kingdom	A. Molinari P.R. Brewin	315
Nitrogen Enhanced Stainless Steel by Powder Injection Molding	J.V. Wood J. Rawers	319
Effect of Sn on the Properties of Fe-Cu-Pb-MoS ₂ Antifriction Alloy	F. Croydon R. Krabbe N. Duttlinger	323
Control of Orientation in Short Fiber-Reinforced Metal Matrix Composites	M. Chandrasekaran P. Singh T. Zhang	331
Two Phase Flow Model for the Close-Coupled Atomization of Metals	J.R.G. Evans M.J. Bevis R.S. Miller	341
Effect of Nozzle Geometry and Position on Gas Atomization	S.A. Miller S.D. Savkar D.P. Mourer T. Le	353
A Measure of the Number of Particles in Agglomerates	H. Henein R.M. German	365

VOLUME 33, NUMBER 1, JANUARY/FEBRUARY 1997

New Die Wall Lubricant System	W.G. Ball P.F. Hibner F.W. Hinger J.E. Peterson R.R. Phillips	23
P/M in Austria	J.V. Bee E. Toussaint	33
P/M in Germany	K. Dollmeier F. Petzoldt	39
High Temperature Creep of Microcrystalline Dispersion Strengthened Copper Alloys	C. Sauer T. Weissgaerber W. Puesche G. Dehm J. Mayer B. Kieback	45
Particle Fragmentation During Supersolidus Sintering	R. Tandon R.M. German	54
The Bauschinger Effect in Sintered Steels	E.S. Palma	61

VOLUME 33, NUMBER 2, MARCH 1997

Status of Powder Metallurgy in Korea	I-H. Moon W-J. Lee	15
P/M and Particulate Materials Research – CEIT	F. Castro	19

Property Variation in Sintered Steel: Design of Experiments	J. Urcola	
Colorimetric Corrosion Testing of P/M Stainless Steel	M. Fuentes	
	B. Bergquest	30
	D-W. Yuan	41
	J.R. Spirko	
	H.I. Sanderow	
Fabrication of Bulk Amorphous Alloys by Powder Consolidation	Y. Kawamura	50
	H. Kato	
	A. Inoue	
	T. Masumoto	
<u>VOLUME 33, NUMBER 3, APRIL/MAY 1997</u>		
P/M Technology Trends – 1997	P.K. Johnson	13
Manufacturing Clad Products by Spray Forming	J. Forrest	21
	R. Price	
	D. Hanlon	
Spray Forming Large Diameter Special Steel Billets	L. Shaw	31
	C. Spiegelhauer	
Densification Strategies for High Endurance P/M Components	P. Jones	37
	K. Buckley-Golder	
	R. Lawcock	
	R. Shivanath	
ISO 14000: Implications for the P/M Industry	W.B. Ericson	45
Modeling and Microstructure Development in Spray Forming	R.D. Doherty	50
	C. Cai	
	L. Warner Kohler	
<u>VOLUME 33, NUMBER 4, JUNE/JULY 1997</u>		
P/M in Japan	N. Furukawa	17
Worldwide Market and Technology for Powder Injection Molding	R. German	23
	R. Cornwall	
Dimensional Precision of MIM Parts Under Production Conditions	K. Kulkarni	29
Microstructural Features Limiting the Performance of P/M Steels	H. Danninger	43
	D. Spoljaric	
	B. Weiss	
Powder Injection Molding and Infiltration Sintering of Superfine Grain W-Cu	B. Yang	55
	R. German	
<u>VOLUME 33, NUMBER 5, AUGUST 1997</u>		
Award Winners Outflank Competitive Materials	P.K. Johnson	25
Robust Sintering of Iron-Phosphorous P/M Steel	B.J. Berquist	33
	B.C. Hildenwall	
Tribological Behavior of Steam Treated Ferrous Parts	A. Molinari	55
	G. Straffelini	
Challenges for the 21st Century	D.G. White	45
<u>VOLUME 33, NUMBER 6, SEPTMBER 1997</u>		
Mixedness Engineering for Advanced Multicomponent Materials	E. Gulliver	29
	R.E. Riman	
	V.A. Greenhut	
	J. Friel	
Freeform Powder Molding: From CAD Model to Part Without Tooling	S.J. Rock	37
	C.R. Gilman,	

P/M in Taiwan R.O.C.	W.Z. Misiolek Lawrence W.H. Chen	45
Densification of Prealloyed Tool Steel Powders: Sintering Model	K.S. Liu R.M. German	49
<u>VOLUME 33, NUMBER 7, OCTOBER 1997</u>		
Hardenability Characteristics of P/M Alloy Steels	C.C. Skena T. Prucher R. Czarnek J.M. Jo	25
High Yield, Nonaxisymmetric Atomization of Nickel Base Superalloys	S.A. Miller R.S. Miller D.P. Mourer R. W. Christensen	37
Melt Atomization: Multiple Regression Analysis	K.P. Cooper C.I. Whitman	51
<u>VOLUME 33, NUMBER 8, NOVEMBER/DECEMBER 1997</u>		
A Comparison of Powder Particle Size Measuring Instruments	R.G. Iacocca R.M. German	35
Influence of Porosity on the Deformation and Fatigue Behavior of P/M Austenitic Stainless Steel	U. Lindstedt B. Karlsson R. Masini	49
P/M Superalloys: A Current Perspective	W. Eisen	62
<hr/>		
<u>VOLUME 34, NUMBER 1, JANUARY/FEBRUARY 1998</u>		
Developing P/M Gear Tooth and Bearing Surfaces for High Stress Applications	P.K. Jones K. Buckley-Golder D. Sarafinchan	26
Sintering and Mechanical Properties of a Boron-Doped Austenitic Stainless Steel	R. Tandon R.M. German	40
Steel Powder Compaction and Forming Analysis	S. Tamura T. Aizawa T. Mitsuno J. Kihara	50
<u>VOLUME 34, NUMBER 2, MARCH 1998</u>		
Persistent Liquid Phase Sintering of 316L Stainless Steel	A. Molinari G. Straffelini T. Pieczonka J. Kazior	21
Effect of Lubrication Mode and Compaction Temperature on the Properties of Fe-Ni-Cu-Mo-C	C. Degoix A. Griffo R.M. German	29
Powder Metallurgy Processing of Nb-TiO ₂ Materials	H.R.Z. Sandim F. Padilha	34
Densification and Dilation of Sintered W-Cu Alloys	A. Upadhyaya R.M. German	43
<u>VOLUME 34, NUMBER 3, APRIL 1998</u>		
Annual Technology Review: P/M Technology Trends – 1998	P.K. Johnson	17
Enhanced Machinability and Oxidation Resistance of P/M Steels Using	S.F. Claeys	29

Modified MnS Additions Machinability of P/M Materials as Determined by Drilling Tests	K.S. Chopra H.I. Sanderow J.R. Spirko R. Corrente	37
On-Line Control of Apparent Density: Computer Simulation and Analysis	L.N. Smith P.S. Midha	47
VOLUME 34, NUMBER 4, MAY/JUNE 1998		
Common Causes of Cracks in P/M Compacts	D.C. Zenger H. Cai	33
Process Economics and Technological Advances in P/M Automotive Parts	D. Whittaker	53
Improved P/M Silver-Zinc Oxide Electrical Contacts	P.B. Joshi P.S. Krishnan R.H. Patel N.S.S. Murti V.L. Gadgeel P. Ramakrishnan	63
VOLUME 34, NUMBER 5, JULY/AUGUST 1998		
The Challenges of Growth: State-of-the-P/M Industry in North America	D.G. White	27
Award Winning Parts Tap New Markets	P.K. Johnson	37
Production and Applications of Low Cost Titanium Powder Products	V. Moxson O.N. Senkov F.H. Froes	45
Statistical Analysis of Lubricant Particle Size Effects on Ferrous P/M Alloys	A. Griffo A. Marszalek R.M. German	55
VOLUME 34, NUMBER 6, SEPTEMBER 1998		
Nanostructured Materials: An Overview and Commercial Analysis	M.N. Rittner T. Abraham	33
Microstructure and Thermal Expansion Behavior of Sintered Fe-Ni-Co Alloys	R.M. Nascimento A.N. Klein A.E. Martinelli	37
Microstructural Characterization of a High Carbon Fe-C Alloy During Attrition Milling and Sintering	M.L. Ovecoglu Z. Aslanoglu B. Ozkal	47
Effects of Sintering Parameters on the Mechanical Properties of a Fe-2Cu-2Ni-0.9Mo-0.8C Steel	C.N. Degoix A. Griffo R.M. German	57
VOLUME 34, NUMBER 7, OCTOBER 1998		
Modified P/M Soft Magnetic Materials for Automotive Applications	L. I. Frayman D. R. Ryan J. B. Ryan	31
Magnetic Properties of Nd-Fe-B Magnets Prepared by Metal Injection Molding	O. Yamashita	41
Particle Bonding During Heat Treatment of Green Compacts Intended for AC Soft Magnetic Applications	L-P. Lefebvre A.L. Dawson S. Pelletier Y. Deslandes G. Pleizier	51

VOLUME 34, NUMBER 8, NOVEMBER/DECEMBER 1998

P/M Processing of Surgical Implants: Sintered Porous Surfaces for Tissue- to-Implant Fixation	R.M. Pilliar	33
Mechanical and Corrosion Properties of Nitrogen-Alloyed Stainless Steels Consolidated by MIM	R. Tandon	47
	J.W. Simmons	
	J.H. Russel	
	B.S. Covino, Jr.	
Sintering Iron Using an Abnormal Glow Discharge	V.J. Batista	55
	R. Binder	
	A.N. Klein	
	J.L.R. Muzart	

VOLUME 35, NUMBER 1, JANUARY/FEBRUARY 1999

Grain Growth Inhibition In Liquid Phase Sintered Nanophase WC/Co Alloys	R.K. Sadangi	27
	L.E. McCandlish	
	B.H. Kear	
	P. Seegopaul	
Microstructure and Wear Response of Spray Cast Al-Si/SiCp Composites	C-S Park	41
	M-H Kim	
	A. Lawley	
Measurement and Analysis of Melt Flowrate in Gas Atomization	T. Le	51
	R. Stefaniuk	
	H. Henein	
	J-Y Huot	

VOLUME 35, NUMBER 2, MARCH 1999

Processing of Composite Al/SiC Powders for Plasma Spraying	K. Ghosh	27
	T. Troczynski,	
	A.C. Chaklader	
Microstructure and Sliding Wear Behavior of Thermal Spray Carbide Coatings	G.M. La Vecchia	37
	F. Mor	
	G. Straffelini	
	D. Doni	
Evaluation of Porosity in Spray Deposited A2 Tool Steel	J-P. Delplanque	47
	W.D. Cai	
	D. White	
	E.J. Lavernia	
Solution-Reprecipitation Mechanism in Fe-Cu-C During Liquid Phase Sintering	H. Kuroki	57
	G. Han	
	K. Shinozaki	

VOLUME 35, NUMBER 3, APRIL 1999

Annual Technology Review: P/M Technology Trends - 1999	P.K. Johnson	23
Cost-Effective HIPing	F.X. Zimmerman	31
	C. Bergman	
	J. Westerfund	
HIP Developments In Russia	R.A. Khaykin	37
Hot Isostatic Pressing Services and Facilities	J.C. Hebeisen	41
	B. Birch	
Hot Isostatic Pressing: Saving Time and Money	C. Barre	51
Fully Dense P/M Components Produced by Hot Isostatic Pressing	F. Rizzo	53
	J. Conway	

Axisymmetric Part Compaction: Data Base For Numerical Simulation	P. Doremus E. Pavier J. Kergadallan G. Puente	63
--	--	----

VOLUME 35, NUMBER 4, MAY/JUNE 1999

APMI International - 40 Years Serving P/M	P.K. Johnson	43
Metal Injection Molding of Nanostructured W-Cu Composite Powder	J-C. Kim S-S. Ryu H. Lee I-H. Moon	47
Computer Model for the Sintering Densification of Injection Molded M2 Tool Steel	R.M. German	57

VOLUME 35, NUMBER 5, JULY/AUGUST 1999

State-of-the P/M Industry in North America	D.G. White	25
International Design Competition Winners	P.K. Johnson	31
International Standards and the P/M Industry in North America	W.A. Buerkel	39
Evaluation of a Polyethylene Lubricant for Aluminum P/M Applications	L-P. Lefebvre Y. Thomas	45
A New Technique for the Evaluation of Die Compaction Lubricants	R.G. Iacocca D.C. Smith R.M. German	54

VOLUME 35, NUMBER 6, SEPTEMBER 1999

Thermal Cracking in Large Diameter Spray Formed Billets	J.E. Fischer V. Uhlenwinkel R. Schroder N. Jordan S. Hansmann H.R. Muller	27
Testing P/M Materials for High Loading Gear Applications	G. Hoffmann K. Lipp K. Michaelis C.M. Sonsino J.A. Rice	35
Supersolidus Liquid Phase Sintering of Injection Molded M2 Tool Steel	N.S. Myers R.M. German	45

VOLUME 35, NUMBER 7, OCTOBER 1999

Overview: Status and Current Developments in Nanomaterials	B.H. Kear G. Skandan	35
Metallic Nanopowders Produced by the Electro-Exploding Wire Process	F. Tepper	39
Production of Oxide Nanopowders by Chemical Vapor Condensation	A. Singhal G. Skandon	45
Metal Nanopowders for Electrically Conductive Polymers	B.H. Gunther	53
Sintering of Nanocrystalline Powders	J.R. Grozo	59

VOLUME 35, NUMBER 8, NOVEMBER/DECEMBER 1999

Powder Metallurgy Processing of Mo-Cu for Thermal Management Applications	J.L. Johnson R.M. German	39
---	-----------------------------	----

Supersolidus Liquid-Phase Sintering Behavior of Degassed 6061 Al Powder	A. Ziani	49
	S. Pelletier	
Sintered 6061 Al Prealloyed Powder: Processing and Mechanical Behavior	A. Ziani	59
	S. Pelletier	

VOLUME 36, NUMBER 1, JANUARY/FEBRUARY 2000

In Situ Strength Evolution of P/M Compacts During Sintering	G.A. Shoales	29
	R.M. German	
Corrosion Behavior of P/M Components for Gasoline Injectors	S. Rossi	39
	F. Deflorian	
	P.L. Bonora	
	S. Bottacin	
	R. Moschini	
Sinter-Hardening and Hardenability	E. Duchesne	49
	G. L'Esperance	
	A. de Rege	
The Enchanted World of Metal Fibers	R. De Bruyne	61
	L. Oster	

VOLUME 36, NUMBER 2, MARCH 2000

Resonant Inspection in P/M	J.D. Kantola	31
Annual Technology Review: Technology Advanced Fuel Industry Growth	P.K. Johnson	37
Elevated Temperature Stability of Powder Processed Al-Fe-Ni	E.Y. Gutmanas	47
	O. Botstein	
	A. Lawley	
Microstructural Evolution in P/M Hypereutectic Al-Si Alloys Containing Fe and Ni	R.M. Gomes	57
	T. Kimura	
	L. Schaeffer	
	T. Sato	
	A. Kamio	

VOLUME 36, NUMBER 3, APRIL 2000

Powder Injection Molding: Current and Long Term Outlook	P.A. Hauck	29
The Scientific Status of Metal Powder Injection Molding	R.M. German	31
Optimizing Component Designs for Metal Injection Molding	A.D. Hanson	37
	S.C. Perruzza	
Metal Powders and Feedstocks for Metal Injection Molding	K. Kulkarni	43
Metal Injection Molding: Medical Applications	T.A. Tomlin	53

VOLUME 36, NUMBER 4, MAY/JUNE 2000

Production of Steel Powders by Rotating Electrode Processes: Economic Analyses	D.A. Chiango	49
	J.A. Isaacs	
	S.A. Miller	
Corrosion Modes in P/M Ferritic Stainless Steels	M.C. Baran	57
	B.A. Shaw	
Taking a Powder: Laser Processing	R. Irving	69

VOLUME 36, NUMBER 5, JULY/AUGUST 2000

State-of-the P/M Industry in North America - 2000	D.G. White	41
Outstanding P/M Designs Replace Stamped, Cast and Machined Parts	P.K. Johnson	49
Monitoring Transient Liquid Phase Sintering of Cu-Sn Alloys by Thermal Analysis	B. Reyburn	57
	S. Corbin	

VOLUME 36, NUMBER 6, SEPTEMBER 2000

Aluminum P/M: Past, Present and Future	F. Beaumont	41
P/M Aluminum Structural Parts – Manufacturing and Metallurgical Fundamentals	C. Lall	45
	W. Heath	
New Directions in Aluminum-Based P/M Materials for Automotive Applications	W.H. Hunt Jr.	51
Ultra-lightweight Aluminum Foam Materials for Automotive Applications	T.D. Claar	61
	C-J Yu	
	I. Hall	
	J. Banhart	
	J. Baumeister	
	W. Seeliger	

VOLUME 36, NUMBER 7, OCTOBER 2000

Academic Profile: Powder Metallurgy at the Universidad Carlos III de Madrid	J.M. Torralba	33
	M.A. Martinez	
Sintering and Evolution of Microstructure in TiC-Ni ₃ Al Cermets	T.N. Tieg	46
	J.L. Schroeder	
	F.C. Montgomery	
	D.L. Baker	
Numerical Simulation of Anisotropy in Sintering Due to Prior Compaction	A. Zavaliangos	58
	D. Bouvard	

VOLUME 36, NUMBER 8, NOVEMBER/DECEMBER 2000

Switching Performance of W-Ag Electrical Contacts Fabricated by Mechanical Alloying	Z. Aslanoğlu	35
	Y. Karakas	
	M.L. Övecoğlu	
Dispersion Hardened Cu-Al ₂ O ₃ Produced by High Energy Milling	V.M. Rajkovic	45
	M.V. Mitkov	