

Table of Contents

Development of a Spray Dryer Device to Produce Ammonium Niobium-Oxalate Precursor U.C. Oliveira Filho, A.C. Araújo, E.L. Oliveira and C.P. Souza	3
Centrifugal Atomization of Metals: Thermodynamics of the Process G.S. Bobrovinitchii and M. Filgueira	9
On the Compacting of Powders of the Systems Fe-Cu and Fe-Cu-Diamond V.F.d. Silva, M.V.C. Sampaio, E.A. de Carvalho, G.S. Bobrovinitchii and M. Filgueira	16
Deposition of Sn-Al Onto Aluminum Powder in Its Self-Convective Motion by DC Sputtering T. Sonoda, A. Watazu, K. Kato and T. Asahina	23
Explosion Study of an Iron Powder Reduction Furnace A.E.P. Brown, P.L. Metropolo and M.A. Carvalho	28
Characterization of Ti-35Nb-7Zr-5Ta Alloy Produced by Powder Metallurgy E.B. Taddei, V.A.R. Henriques, C.R.M. Silva and C.A.A. Cairo	34
Microstructural Evolution of Ti-13Nb-13Zr Alloy during Sintering V.A.R. Henriques, C.A.A. Cairo, C.R.M. Silva and J.C. Bressiani	40
The Use of High Energies Radiations to Characterise Solid-Liquid Systems F.d.O. Arouca and J.J.R. Damasceno	49
Microstructural Evolution during Sintering of the P/M Blended Elemental Ti-5Al-2.5Fe Alloy R.P. Siqueira, H.R.Z. Sandim, V.A.R. Henriques and J.F.C. Lins	55
A Study of Settling Techniques for Measurement of the Size Distribution of Solid Particles F.d.O. Arouca, M.A.S. Barrozo and J.J.R. Damasceno	61
Organophilization of Four Differents Bentonitic Clays with a Quaternary Ammonium Salt D.d.L.A.C.S. Andrade, W.A. Freire, S.S. Araújo, L.G.F. Vieira, A.C.F. de Melo Costa, L.H. de Carvalho, A.S. Gomes and S.M.L. Silva	67
Particle Size Distribution Analysis of an Alumina Powder: Influence of Some Dispersants, pH and Supersonic Vibration C.J. Papini, W.K. Yoshito, D. Gouvêa and R.M.L. Neto	73
Machining and Mechanical Characterisation of PM Materials for Valve Seat Inserts E.S. Jesus Filho, L. Salgado, S.L. de Jesus, J.L. Rossi, M.A. Colosio and J.C. Santos	79
Corrosion and Cytotoxicity Evaluation of AISI 316L Stainless Steel Produced by Powder Injection Molding (PIM) Technology I. Costa, S.O. Rogero, O.V. Correa, C.T. Kunioshi and M. Saiki	86
Corrosion Protection of AISI 304 Stainless Steel Filters by a Surface Treatment L. De Micheli and I. Costa	93
An Investigation on the Corrosion Behaviour of Nd-Fe-B Magnets in a Chloride Solution I. Costa, M.C.L. Oliveira, H.G. De Melo and R.N. Faria	98
Compressive Creep of Hot-Pressed Si_3N_4 Ceramics Using $\text{CRE}_2\text{O}_3\text{-Al}_2\text{O}_3$ or $\text{CRE}_2\text{O}_3\text{-AlN}$ Additive Mixtures C. dos Santos, K. Strecker, M.J.R. Barboza, S.A. Baldacim, F.P. Neto, O.M.M. Silva and C.R.M. Silva	104
Microstructure and Magnetic Properties of Fe-6.5wt%Si Alloy Obtained by Spray Forming Process M.C.A. da Silva, C. Bolfarini and C.S. Kiminami	111
Effect of Calcination Conditions on the Magnetic Properties of MnZn Ferrites Powders Produced by Co Precipitation S.R. Janasi, D. Rodrigues and F.J.G. Landgraf	119
The Influence of Pr Concentration on the Magnetic Properties of Pr-Fe-Co-B-Nb HDDR Magnets L.P. Barbosa, N.A. Ferreira, H. Takiishi and R.N. Faria	125
Determination of Intrinsic Magnetic Parameters of SmCo_5 Phase in Sintered Samples M.F. de Campos and F.J.G. Landgraf	129
Determination of the Constants of Magnetocrystalline Anisotropy in Sintered Magnets with Uniaxial Texture M.F. de Campos	134

Effect Ni Addition of the Cu-Al Powder by Mechanical Alloying	141
R.E. Coelho, A.C.R. Veloso, R.M. Gomes, T.A.d.A. Melo and S.J.G. de Lima	
Preparation of Nb-40Ti Powders by High-Energy Milling	146
Y.A. Giffoni, E.C.T. Ramos, A.S. Ramos, H.R.Z. Sandim and M.T.T. Pacheco	
Combustion Synthesis of Mechanically-Activated Nb-Al Mixtures	152
F. Buracovas, V.S. Gonçalves, C.J. da Rocha and R.M.L. Neto	
Production and Characterization of Aluminium NbAl₃ Composite by Mechanical Alloying and In Situ - A Process Comparison	158
S.L. Urtiga Filho, J.C. Earthman, I. Nieves, M.H. Robert and T.P. Waked	
On the Use of Stainless Steel Water Atomized Powders for Injection Molding Regarding Corrosion Resistance	164
M.M. Bonato, W. da Silveira, W.H. Schreiner, P.A.P. Wendhausen and P.C. Borges	
Titanium Powder Processing with Binder Addition for Biomedical Applications	173
M.V. de Oliveira, L.C. Pereira and C.A.A. Cairo	
Computational Fluid Dynamics Techniques for Flows in Lapple Cyclone Separator	179
A.F. Lacerda, L.G.M. Vieira, A.M. Nascimento, S.D. Nascimento, J.J.R. Damasceno and M.A.S. Barrozo	
Effect of Heat Treatment on Microstructure of Commercial and Vacuum Sintered High Speed Steels AISI M2 and T15	186
R.A. Nogueira, O.C.S. Ribeiro, M.D.M. das Neves, L. Salgado and F. Ambrozio Filho	
Sintering Behavior of NbC-Reinforced Steel	192
D.S. Paulo, A.E. Martinelli, C. Alves Jr., J.H. Echude-Silva, M.P. Távora and R.M. Nascimento	
Cellular Concrete with Addition of Aluminum Recycled Foil Powders	198
E.G.d. Araújo and J.A.S. Tenório	
The Development of an Innovative P/M Oil Control Ring from Concept to Production Line	205
R. Panelli, A. Ferarrese, R. Soave and R. Pegorer	
Densification Study of Titanium Powder Compacts	211
M.C.C. Ueta, C.A. Fracote, V.A.R. Henriques, M.L. de Alencastro Graça and C.A.A. Cairo	
The Role of the Apparent Density on the Permeability of Porous Stainless Steel Parts	217
D. Rodrigues, J.P. Tosetti, F. Beneduce, L. Salgado and F. Ambrozio Filho	
Study of the Diamond 5%wt- Cobalt Sintering under the HPHT Lowest Limit	225
F.T.C. Lima, G.S. Bobrovinitchii and M. Filgueira	
Pressure Assisted WC-15%wt Co Sintering	231
M.F. Rodrigues, G.S. Bobrovinitchii, A.M. Ramalho and M. Filgueira	
Sinterability of High-Speed Steels M2, M3/2 and T15	238
R.M.U. Nogueira and C.E.d. Costa	
High-Speed Steels Produced by Conventional Casting, Spray Forming and Powder Metallurgy	244
R.A. Mesquita and C.A. Barbosa	
Microstructural Characterisation by Scanning Electron Microscopy of Spray Formed Al/SiC_p Matrix Composite	251
E.G. Gomes and J.L. Rossi	
Consolidation of Compacted Zircaloy Chips via Vacuum Arc Melting - Analysis of the Electric Arc	258
C.S. Mucsi, R.N. Faria, E. Galego and J.L. Rossi	
Computational Fluid Dynamics Applied to Bradley Hydrocyclones	264
L.G.M. Vieira, J.J.R. Damasceno and M.A.S. Barrozo	
Simulation of Spouted Bed Using a Eulerian Multiphase Model	270
C.R. Duarte, V.V. Murata and M.A.S. Barrozo	
A Study of the Rejects Recovery in a Column Flotation	278
M.S. Oliveira, D.R. Cioqueta, M. Sallum, R. Miro, R.C. Guimarães, C.H. Ataíde and M.A.S. Barrozo	
The Nitriding of Ferrous Powder Alloys - Mathematical Modelling and Simulation	285
R. Politano and J.L. Rossi	
Humidity Sensitive Characteristics of ZnO-TiO₂-Ta₂O₅ Ceramic	293
S.L. Mineiro, M.d.C.d.A. Nono, C. Kuranaga and M.D. Silva	
Chemical Synthesis by Pechini Method for Obtation of ZnO Varistors	299
P.C. Ribeiro, E.G. da Costa, L. Gama, A.C.F. de Melo Costa and R.H.G.A. Kiminami	

Evaluation of the Effect of Heavy Rare Earth Elements on Electrical Resistivity of Zirconia-Yttria Ceramics	305
D.R.R. Lazar, V. Ussui, E.N.S. Muccillo, A.H.A. Bressiani and J.O.A. Pascoal	
Characterization of Strontium Ferrites Powders Obtained by High Energy Milling	311
P.I. Paulin Filho and R.R. Corrêa	
Monofilamentary Ag/Bi:2212 Tapes – Effects of Silver Powder Addition	316
D.I. dos Santos, D. Rodrigues, E.A.A. Rubo and E. Cursino	
Microstructure and Some Microwave Properties of Ba₂Ti₉O₂₀ Doped with ZrO₂	319
Y. Koldayeva, M.d.C.d.A. Nono, P.J. Castro and S.T. Fonseca	
Microstructure and Microwave Characterization of SrO₂ -Ba₂ Ti₉ O₂₀ Dielectric Resonators for Telecommunications Applications	324
M.d.C.d.A. Nono, S.T. Fonseca, P.J. Castro and Y. Koldayeva	
Phase Amorphization during High-Energy Milling of Mixtures of Zirconia with Yttria or Ceria Powders	324
R. Muccillo, L. Franchi, J.T. Santos, I.C. Cosentino and E.N.S. Muccillo	
Use of Impedance Spectroscopy in the Study of the Effect of Cr Concentration on the Electrical Properties of SnO₂-Based Ceramics	331
D.R. Leite, W.C. Las, G. Brankovic, M.A. Zaghete, M. Cilense and J.A. Varela	
Influence of Mg on the Structural and Optical Properties of LiNbO₃ Thin Films Grown by Polymeric Precursor Method	337
A.Z. Simões, V. Bouquet, F. Moura, A. Ries, M.A. Zaghete and J.A. Varela	
Fracture Toughness of SiC-Cu Based Alloys Cermets	342
S. Ordoñez, L. Carvajal, V. Martínez, C. Agurto, J. Marín, L. Olivares and I. Iturriza	
Sintering Behavior of Si₃N₄-TaC Based Composites	350
A.C.S.C. Rumbao, J.C. Bressiani and A.H.A. Bressiani	
Influence of NbC-Addition on Mechanical Properties of WC-Co	357
W. Acchar and H.R.d. Macedo	
Ceramic Composites Derived from Nb/Al₂O₃-Filled Polysilsesquioxane	363
M.A. Schiavon, I.V.P. Yoshida, A.C. Silva and W. Acchar	
Ceramic Composites Derived from Polysiloxane/Al/Nb by AFCOP Process	369
M.A. Schiavon, I.V.P. Yoshida, J.C. Bressiani and W. Acchar	
Comparison of Physical and Mechanical Properties in Ceramics Composites Si₃N₄-CTR-AlN and Si₃N₄-Y₂O₃-AlN	375
S.A. Baldacim, O.M.M. Silva, C. dos Santos and C.R.M. Silva	
The Changes on Microstructure and Electrical Properties of Bi:2223/Ag Composite as a Function of the Granulation and the Content of the Added Silver Powder	381
D.I. dos Santos, L.A.G. Zanata, M.J. Saeki and C.C. Nunes	
Alkaline Activation of Kaolinitic Soils for the Production of Special Binders	388
D.P. Dias, A. Soares, C.E. Viana, J.C. Soares and P.H.B. Azevedo	
Addition of Polyurethane to Portland Cement	394
A.E. Martinelli, D.M.A. Melo, F.M. Lima, U.T. Bezerra, E.P. Marinho and D.M. Henrique	
Composites of Portland Cement and Natural Polymers	401
U.T. Bezerra, A.E. Martinelli, D.M.A. Melo, D.M. Henrique, E.M. Rodrigues and F.M. Lima	
Chemical Vapor Densification Process of Carbon Fiber Substrates	407
T. Kajita, L.C. Pardini and F.C.L. de Melo	
Study of the Potentiality of Residue from Kaolin Industry as Ceramic Raw Material to Produce Porcelanate Gres	413
M.A.F. Ramalho, L.N. de Lima Santana, G.A. Neves and H.L. Lira	
Recycling of Silicon Carbide and Corn Starch as Binder Originating from Commercial Starch Consolidation	420
E.M. Marins, E.F. Lucena, F.P. Santos, É. de Campos, M. Zacharias and J.A.J. Rodrigues	
Using Experiments Design to Model Linear Firing Shrinkage of Triaxial Ceramic Bodies	425
S.L. Correia, K.A.S. Curto, D. Hotza and A.M. Segadães	
A Method to Optimize Ceramic Masses for Coatings through Delineation of Experiments	430
J. Silveira, L.R.d.A.P. Pontes, J.P. Leite and J.H. Echude-Silva	
Safe Use of Natural Gas in Ceramic Furnace Burners	436
P.L. Metropolo and A.E.P. Brown	
	442

Clays from Southern Brazil: Physical, Chemical and Mineralogical Characterization	447
S.L. Correia, K.A.S. Curto, D. Hotza and A.M. Segadães	
Electron Beam-Physical Vapour Deposition of Zirconia Co-Doped with Yttria and Niobia	453
D.S. Almeida, C.R.M. Silva, M.d.C.d.A. Nono and C.A.A. Cairo	
Methodology for Prediction of Desired Mechanical Properties as a Function of Mixture Components	
J.V. Nardi and D. Hotza	459
The Use of Electrochemical Techniques for Ceramic Filtration Medium Cleaning	
O.B.G. Assis and E.R. Silva	464
Replacing Coal by Tire Powder in Ceramic Industry	
C.G. Mothé and H.F. Mothé Filho	470
Wet Processing of Triaxial Ceramics Using a Mixture Design Approach	
C.M.F. Gomes, A.D. Noni, J.P. Reis, J.A.R. Souza, A.P.N. Oliveira and D. Hotza	476
Dimension Stone Cutting with AWJ Methods	
G.R.M. Cortés, W.T. Hennies, C.T. Lauand and F.R. Valenzuela-Díaz	482
Synthesis, Rheological Behavior and Mechanical Characterization of Structural Fast-Setting Geopolymers	
A.E. Martinelli, D.M.A. Melo, E.P. Marinho, T.W.J. Batista, R.G.S. Araújo and M.A.F. Melo	488
Densification Study of SiC:Al₂O₃:Y₂O₃ with Polymer Additions	
A.L.E. Godoy, J.C. Bressiani and A.H.A. Bressiani	494
Solid Galvanic Wastes Incorporation in Glass Matrices	
A.A. Marialva-Neto, S.M. Cunha, A.C. da Silva and S.R.H. de Mello-Castanho	500
Tetragonal-to-Monoclinic Transformation Influence on the Mechanical Properties of CeO₂-ZrO₂ Ceramics	
M.d.C.d.A. Nono	506
Thermal Characterization of Sintered Clay-Petroleum Waste Mix by the Photoacoustic Technique	
M.F. Rodrigues, M.S. Sthel, H. Vargas and J.N.F. Holanda	512
Utilization of Granite Powder Waste in Ceramic Bodies for Civil Construction	
J.M.S. Moreira, M.N. Freire and J.N.F. Holanda	517
Production, Sintering and Microstructural Characteristics of Ba₂MgWO₆ Ceramics	
L.A.R.d. Aguiar, C.M. Lapa, R.A.S. Ferreira, J.A. Aguiar, C.L.d. Silva, D.P.F. Souza and Y.P. Yadava	523
Sintering, Microstructure and Mechanical Properties of Ba₂HoWO_{5.5} Ceramics	
C.M. Lapa, R.A.S. Ferreira, J.A. Aguiar, C.L.d. Silva, D.P.F. Souza and Y.P. Yadava	529
Synthesis and Thermal Characterization of Luminescent Powers of Terbium (III) with Mixed Ligands	
C.R. da Silva Morais, W.S. Lopes, A.G.d. Souza and P.D. Santa-Cruz	535
Anelastic Spectroscopy in TiO₂	
C.R. Grandini, R.L.N. Oliveira, R.P. Mota, F.P. Santos and É. de Campos	540
Study of PSZ Sintered in Low Oxygen Partial Pressure	
D.A.P. Reis, D.S. Almeida, M.d.C.d.A. Nono, C.R.M. Silva and F.P. Neto	546
Influence of the Granulometry of Organic Matter Ashes from Municipal Solid Waste on the Properties of Vitrified Ceramics	
M.C.B. Gadioli, B.C. Santos, R.A. Conte, D.G. Pinatti, C.M.F. Vieira and S.N. Monteiro	552
Sintering of a Clay Material with Granite and Marble Reject	
J.B. Silva, F.A. Vieira, W. Acchar, D. Hotza and A.M. Segadães	558
Anelastic Spectroscopy in Al₂O₃	
C.R. Grandini, R.L.N. Oliveira, R.P. Mota, F.P. Santos and É. de Campos	564
Oxidation Behavior of Hot-Pressed Si₃N₄ Ceramics Using CRE₂O₃-AlN and CRE₂O₃-Al₂O₃ as Sintering Additives	
C. dos Santos, K. Strecker, F.P. Neto, M.A. Lanna, O.M.M. Silva and C.R.M. Silva	569
Creep Behavior of Multi-Cation α-SiAlON Partially Stabilized Produced with an Yttrium-Rare Earth Oxide Mixture(CRE₂O₃)	
C. dos Santos, K. Strecker, M.J.R. Barboza, S.A. Baldacim, F.P. Neto, O.M.M. Silva and C.R.M. Silva	575
Anelastic Spectroscopy in Superconducting Oxides	
J.M. de Albuquerque Gimenez, C.R. Grandini, D.I. dos Santos and A.G.d. Cunha	581

Molybdenum Silicides as a Bonding Phase in Diamond Composites	587
L. Jaworska, J. Morgiel, L. Stobierski, J. Lis, B. Krolicka and W. Maziarz	
Biofunctionalization of Glass Powder by Cold-Plasma Technique	594
O.B.G. Assis and L.G. Paterno	
Effect of the Calcination Time of Fish Bones in the Synthesis of Hydroxyapatite	600
W.M. Lima, W.R. Weinand, O.A.A. dos Santos, A. Paesano and F.H.M. Ortega	
Evaluation of Procera/Porcelain Interface in Metal-Free Prostheses	606
S.H. Yasuda, A.C. Guastaldi and E. Vedovato	
Synthesis and Characterization of NiO-8YSZ Powders by Coprecipitation Route	612
W.K. Yoshito, V. Ussui, D.R.R. Lazar and J.O.A. Pascoal	
Nickel Ferrite: Combustion Synthesis, Characterization and Magnetic Properties	618
A.C.F. de Melo Costa, L. Gama, M.R. Morelli and R.H.G.A. Kiminami	
Ce_{0.8}Gd_{0.2}O_{1.9} Powders Synthesized by Co-Precipitation and Amorphous Citrate Processes	624
M.C. Brant, F.d.S. Possa and F.S. Lameiras	
Synthesis of La_{0.8} Sr_{0.2} MnO_{3±δ} Powders by Amorphous Citrate and Pechini Techniques	630
M.C. Brant, J.A. Zani and F.S. Lameiras	
Doped Tin Oxide Nanometric Films for Environment Monitoring	636
P.H. Falla, H.E.M. Peres, D. Gouvêa and F.J. Ramirez-Fernandez	
Synthesis and Characterization of 0.9PMN-0.1PT Powders by the Use of a Modified Columbite Precursor	642
J.C. Bruno, A.A. Cavalheiro, M.A. Zaghete, M. Cilense and J.A. Varela	
Synthesis of WC Powders by Reactive Milling	648
F.R. Passador, S.C. Maestrelli, E.M.J.A. Pallone, R.F. Esposto and R. Tomasi	
Obtaining of the Ceramics Pigments (Fe, Zn)Cr₂O₄ Using Waste of Electroplating as Raw Material	654
K.W. Milanez, N.C. Kuhnen, H.G. Riella and C.T. Kniess	
Aluminas by Thermal Activation of Fibrillar Pseudoboehmite Powders	658
V.F.J. Koziievitch, G.A. Rocha, W.S. Maia, P.K. Kiyohara, A.C.V. Coelho and P. Souza Santos	
Combustion Synthesis of Cu_{1-x}Ni_xCr₂O₄ Spinel for Catalytic Applications	663
P.M. Pimentel, M.F. Ginani, A.E. Martinelli, D.M.A. Melo, A.M.G. Pedrosa and M.A.F. Melo	
Physical Characterization of K-Doped 0.9PMN-0.1PT Synthesized by an Association of the Columbite Route and the Polymeric Precursor Method	669
A.A. Cavalheiro, J.C. Bruno, M.A. Zaghete and J.A. Varela	
A Low Cost ZSM-5 Zeolite Obtained from Rice Hull Ash	676
A.A. Fernandes, E.U.C. Frajndlich and H.G. Riella	
Red Ceramic Materials Durability Evaluation	681
P.C. de Almeida Maia, A.D. Pinheiro and J. Alexandre	
Synthesis and Characterization of Modified Clays as Sorbents of Toluene and Xylene	691
M.M.G.R. Vianna, F.R. Valenzuela-Díaz, V.F.J. Koziievitch, J. Dweck and P.M. Büchler	
Hazardous Wastes Disposal: Stabilization/Solidification of Tannery Residue in the Presence of Chromium	697
C.A. Pinto, J.J. Sansalone, J. Dweck, F.K. Cartledge, F.R. Valenzuela-Díaz and P.M. Büchler	
Influence of Tin Oxide Addition in the Morphologic Characteristics of Zinc Oxide Powders Synthesized by Pechini's Method	704
G.J. Pereira, D. Gouvêa and S.M. Hiraoka	
Toluene, Xylene and Diesel Oil Sorption by Brazilian Organoclays	710
M.M.G.R. Vianna, K.R.O. Pereira, P.M. Büchler and F.R. Valenzuela-Díaz	
Characterisation of Titanium Nitride Thin Films Deposited by Cathodic Arc Plasma Technique on AISI D6 Tool Steel	717
R.A. Vieira and M.d.C.d.A. Nono	
Preparation and Characterization of NiAl₂O₄ Powder by the Pechini and Combustion Methods	722
M.A. Ribeiro, A.C.F. de Melo Costa, H.L. Lira, J.B.L. de Oliveira, R.H.G.A. Kiminami and L. Gama	
Characterization of Granite Waste for Incorporation in Red Ceramic	728
C.M.F. Vieira and S.N. Monteiro	
Complex Carbon-Mineral Sorbents from Common Clay	734
S. Cosin, C.A. Pinto, P. Souza Santos and F.R. Valenzuela-Díaz	

A Study of the Influence of Organic Compounds during the Cement Hydration by Using XRD and DTA

R.A. Hanna, P.M. Büchler and C.R. Cheeseman

740

Synthesis of Niobium Carbide from Ammonium Niobium (V) Oxalate Precursor at Low Temperature in Rotating Cylinder Reactor

F.A.O. Fontes, K.K.P. Gomes, F.d.F.P. Medeiros, C.P. Souza, J.F. Sousa and U.U. Gomes

747