

Table of Contents

Committees and Foreword

Chapter 1: Powder Metallurgy

Structural Comparison of Amorphous, Nanocrystalline and Microcrystalline Al₉₀Fe₇Nb₃ Alloys	
C.A.D. Rodrigues, W.J. Botta Filho and G. Tremiliosi-Filho	3
Synthesis of Powders Nanometer Al₂O₃ Method by Sol-Gel	
S.A.S. Santos, E.S. Lima, L.H.L. Louro and C.A. da Costa	9
Nickel Electrodeposition over Powder Compact for Irradiation Target	
A.M. Saliba-Silva, R.H.L. Garcia, I.C. Martins, E.F. Urano de Carvalho and M. Durazzo	14
Analysis of the Use of a Filtering Medium in Different Parts of a Centrifugal Separator	
J.M.F. Façanha, D.O. Silva, M.A.S. Barrozo and L.G.M. Vieira	20
Three-Dimensional Reconstruction of the Porosity of Pellets of Iron Oxide and Coal Powders by Serial Sectioning	
E.P. Rocha, J.A. de Castro and G.S. da Fonseca	26
Preparation and Characterization: The Effect of Incorporation by Ion Exchange of Pt, Ni and Ru on a H-ZSM5 Zeolite	
A.S. Barbosa, A.S. Barbosa, M.G. Freire Rodrigues and J.M. Grau	32
TiN/ZrN Multilayer PVD Coatings on Titanium Alloys Produced by Powder Metallurgy	
O.C. Schichi, V.A.R. Henriques, E.T. Galvani and C.A.A. Cairo	38
Production of Aerospace Tial Intermetallics for High Temperature Applications by Powder Metallurgy	
V.A.R. Henriques, A.C.S.M. Dutra and C.A.A. Cairo	44
Microstructural Analysis of Ti-6Al-4V Alloy after Plasma Immersion Ion Implantation (PIII)	
M. Castagnet, L.M. Yogi, M.M. Silva, M. Ueda, A.A. Couto, D.A.P. Reis and C. Moura Neto	50
The Influence of Zinc Doping on the Grain Size and Productivity of Diamond Synthesis in the Ni-Mn-C System at High Pressure and High Temperature	
A.L.D. Skury, S.N. Monteiro and S.S.S. Oliveira	56
Processing and Characterization of β-Ti Alloys by Means of Powder Metallurgy Processing and Blender Elemental	
F. Devesa, S. Rial and V. Amigó	61
Three-Dimensional Stochastic Modeling and X-Ray Microtomography Applied to Titanium Scaffolds: A Comparative Approach	
A.C. Moreira, R.L.M. Rouxinol, P.A. de Azevedo Santos, C.P. Fernandes, A.A. Ribeiro, R.M. Balestra and M. Varella	67
Fatigue Strength of Ti-35Nb-7Zr-5Ta	
H.A. Franco, C.R.M. Silva, J.L.A. Ferreira and J.A. Araújo	73
Microstructure and Electrochemical Properties of a LaMgAlMnCoNi Based Alloy for Ni/MH Batteries	
E.A. Ferreira, J.M. Serra, J.C.S. Casini, H. Takiishi and R.N. Faria	80
Effect of the Sintering Atmosphere on the Corrosion Resistance of Titanium for Application as Biomaterial	
L.P. Barbosa, E.C. Souza, L. Salgado and I. Costa	85
Sintering of AISI M₂ High Speed Steel with the Addition of NbC	
A. Wentzcovitch, F. Ambrozio Filho, L.C.E. da Silva and M.D.M. das Neves	90
Effect of Passivation Treatments on the Corrosion Resistance of PIM 316L Stainless Steel in a PEM Fuel Cell Simulated Environment	
I.J. Sayeg, R.A. Antunes and M.C.L. de Oliveira	96
Production of Ti-13Nb-13Zr Alloy by PM for Biomedical Applications Using Zirconium Oxide Grinding Bowl and Balls	
J.H. Duvaizem, A.M. Fajardo, L.P. Barbosa, A.H.A. Bressiani and H. Takiishi	102

Thermogravimetric Study of the Oxidation Behaviour of Sintered Stainless Steels: Influence of Powder Size and Composition	108
C. Moral and A. Bautista	
Utilization of Solar Energy as Heat Source	114
G.O. Prado, A.M.M. Arouca, R.C.C. Domingues, L.G.M. Vieira and J.J.R. Damasceno	
A Simple Algorithm for the Calculation of Hysteresis for Isotropic NdFeB Magnets	119
F.A. Sampaio da Silva and M.F. de Campos	
Study of Carbon Influence on Magnetic Properties of Metal Injection Molding Nd-Fe-B Based Magnets	124
L.U. Lopes, M.A. Carvalho, R.S. Chaves, M.P. Trevisan, P.A.P. Wendhausen and H. Takiishi	
A Model for the Hysteresis Curves of Soft Magnetic Materials	130
F.A. Sampaio da Silva and M.F. de Campos	
EBSD Texture Analysis of NdFeB Magnets	135
C.G. Hauegen, F.R.F. da Silva, F.A. Sampaio da Silva, J.F.C. Lins and M.F. de Campos	
One Domain Wall Hysteresis Model for Spherical Grain	140
M.F. de Campos and J.A. de Castro	
Modeling the Heat Treatment of Dy-Diffused Nd₂Fe₁₄B Magnets: The Shell Model	146
M.F. de Campos and J.A. de Castro	
Nucleus Size Determination for Nd₂Fe₁₄B, Sm₂Co₁₇, SmCo₅ and BaFe₁₂O₁₉ Magnets	151
M.F. de Campos and J.A. de Castro	
A General Coercivity Model for Soft Magnetic Materials	157
M.F. de Campos	
Diffusion Coefficients of Interest for the Simulation of Heat Treatment in Rare-Earth Transition Metal Magnets	163
M.F. de Campos	
The Samarium Depleted Zone in SmCo₅ Magnets	169
M.F. de Campos and F.J.G. Landgraf	
Modeling the Densification of FeSi Sintered Magnetic Alloys	175
J.A. de Castro, G.V. Concilio, D. Rodrigues, L.S. Santomauro and M.F. de Campos	
Thermal Aging of Reprocessed NdFeB Powders	181
E.A. Périgo and F.J.G. Landgraf	
Adhesion Tests in Quasicrystal Powders Reinforced Geopolymer Composites	186
J.D. Altidis, S.R. de Barros, J.D.R.B. de Souza, S.M. Torres and S.J.G. de Lima	
Study of Obtainment of NiCrAlC Alloys by High Energy Ball Milling	190
J.I. Pereira, A.K. da Silva, S. Vurobi Jr., J.D.T. Capochi and O.M. Cintho	
Effect of Mechanical Activation on Microstructure and Mechanical Properties of Aqueous Colloidal Processed Nickel Metal Matrix Nanocomposites	195
L.E. Vieira, J.B.R. Neto, A.N. Klein, D. Hotza and R. Moreno	
Processing of Cu-Al-Ni and Cu-Zn-Al Alloys by Mechanical Alloying	200
A.V. Traleski, S. Vurobi Jr. and O.M. Cintho	
Variation of Tungsten Oxide Reduction Mode Using Different High Energy Milling Conditions	206
O.M. Cintho, H.I. Tsai, M. Bär, M. de Castro, E.F. Monlevade and J.D.T. Capochi	
Structural Evaluation of Mechanically Alloyed (67-x)Ti-xZr-22Si-11B Powders	210
A.S. Ramos, A.C. de Miranda Marzullo, E.C.T. Ramos, D.R. dos Santos and V.A.R. Henriques	
Effect of Molybdenum on the Formation of Ti₆Si₂B in Mechanically Alloyed Ti-Mo-Si-B Powders	216
P.A. Nunes, A.S. Ramos and E.C.T. Ramos	
On the Phase Transformation in Mechanically Alloyed Ni-Nb and Ni-Ta and Ni-Nb-Ta Powders	222
A.C. Ferraretto, E.C.T. Ramos and A.S. Ramos	
Structural Evaluation of Mechanically Alloyed and Heat-Treated Ti-25at-%Si Powders	227
M.A. de Souza, E.C.T. Ramos and A.S. Ramos	
Preparation of Ni-Ti-Mo and Ni-Ti-Mo-Zr Alloys by High-Energy Ball Milling and Subsequent Hot Pressing	233
G.M.C. Pereira, M.A. de Souza, T.M. Hashimoto, V.A.R. Henriques and A.S. Ramos	
Rheological Behavior of Blends Gas-Water Atomized Stainless Steel Powder	239
S. Pascoali, L. Dominguini, J.B. Borges and P.A.P. Wendhausen	

Powder Injection Molding of Multimaterial Parts - Self Lubricating Steel Combined with Plain-Carbon Steel	243
R. Schroeder, A.I.R. Filho, C. Binder and A.N. Klein	
Investigation of Material Combinations Processed via Two-Component Metal Injection Moulding (2C-MIM)	248
G.B. Dutra, M. Mulser, R. Calixto and F. Petzoldt	
Processing and Manufacturing of Metal Matrix Aluminum Alloys Composites Reinforced by Silicon Carbide and Alumina through Powder Metallurgy Techniques	254
E.R. de Araujo, S.J.F. Alves, F.A. Filho, S.L.U. Filho and O.O. de Araújo Filho	
Preparation of Metal Matrix Aluminum Alloys Composites Reinforced by Silicon Nitride and Aluminum Nitride through Powder Metallurgy Techniques	259
E.R. de Araujo, M.M.S. de Souza, F.A. Filho, C.H. Gonzalez and O.O. de Araújo Filho	
Synthesis and Characterization Nanoparticles ZnAl_{1.94}(Yb:Er)_{0.06}O₄ Functionalized with Chitosan	263
C.M. Furtado, P.M.A.G. de Araújo, P.T.A. dos Santos and A.C.F. de M. Costa	
Microstructure and Adhesion of Diamond Composites	269
L.J. de Oliveira and M. Filgueira	
Influence of a TiC Coating on the Wear Resistance of Fe-Diamonds Composites	275
S.C. Cabral, L.J. de Oliveira and M. Filgueira	
Obtention of Aluminium-Quasicrystal Composites by Mechanical Alloying	281
F.L.V. de Sousa, P.C. Romio, T.A. Passos and S.J.G. de Lima	
Physicochemical Analysis of Ti-Si-B Powder Alloys	287
G. de Oliveira, S. de Fátima Magalhães Mariano, B.B. Fernandes, M. Ueda and A.S. Ramos	
Mechanical Properties of Composite AA2024 Matrix with Aluminium Carbide Dispersed by High Energy Milling	293
E.R. Breitenbach, C.E. Costa, M.V. Folgueras, J.C.G. Milan, R.J. Antonelli and F.C. Silva	
Titanium Metal Matrix Composite Laser Coatings Based on Carbides	299
V. Amigó, J.J. Candel and P. Franconetti	
Obtention and Characaterization of the Sn-Ni-Fe-Cu Alloys Applied in Diamond Saw Blade Production	305
A.L.D. Skury, G.S. Bobrovinitchii, M.G. de Azevedo and S.N. Monteiro	
Hard Metal Matrix Composites Reinforced with Cubic Boron Nitride	310
G.S. Bobrovinitchii, A.L.D. Skury, S.N. Monteiro and M.G. de Azevedo	
Mechanical and Structural Characterization of Cu-Ni-Ag/Y₂O₃ Composites Obtained by Powder Metallurgy	314
A.K. Okazaki, M.V.S. Martins, M. Carvalhal, W.A. Monteiro and J.A.G. Carrió	
Metal Matrix Composites from Powder Mixtures of Copper, Tungsten, Aluminum and Nanodiamonds	320
A.L.D. Skury, G.S. Bobrovinitchii and S.N. Monteiro	
Effect of the Milling Time and Addition of a Grinding Agent of Quasicrystalline Powder Based on AlCuFeB Alloys	324
D.G. de Lima Cavalcante, T.P.S. Barros, B.A.S.G. Lima, T.A. dos Passos, S.J.G. de Lima and R.M. Gomes	
Study of Oxidation on Pr-Fe-Co-B Nanopowders Produced by HDDR and Mechanical Milling	329
Nanoparticles Consolidation Mechanism at High Pressure and High Temperature in Diamond-B-Si-Cu System	334
A.L.D. Skury, S.N. Monteiro, M.G. de Azevedo, A.d.C. dos Santos and G.S. Bobrovinitchii	
Covering with Carbon Black and Thermal Treatment by a CO₂ Laser Surfaces of Aisi 4340 Steel	340
G. de Vasconcelos, D.C. Chagas, D.C. Campos and A.N. Dias	
Coated Steel Surfaces with WC by Lasers Action	345
G. de Vasconcelos, D.C. Campos, M.S.F. Lima, A.C. Oliveira, J.G.A.B. Simões and R. Riva	
Application of Sintered Steel for Synchronizer Rings Used in Mechanical Transmissions	349
T.F. Andrade, A.C. Zambon, C.H.C. Sena, A.G. Bida and J.R. Kavai	
Recycling of Zircaloy Machining Chips by VAR Remelting and Powder Metallurgy Techniques	356
H. Takiishi, J.H. Duvaizen, I.M. Sato, J.L. Rossi, L.A.T. Pereira and L.G. Martinez	

Fabrication of Powder from Ductile U-Mo Alloys for Use as Nuclear Dispersion	362
M. Durazzo, C.J. da Rocha, J. Mestnik-Filho and R.M.L. Neto	
Study of Sol-Gel/Powder Metallurgy Technique for Processing Titanium Parts	368
A.A. Ribeiro, L.M. Morani, R.M. Balestra, F.M.L. Dantas, M.H.M. Rocha-Leão and M. Varella	
Quantitative Evaluation of Interstitial Elements in the Processing of Ti-6Al-4V Alloy by Powder Metallurgy	
S.L.G. Petroni, V.A.R. Henriques, M.S.M. Paula and C.A.A. Cairo	374
The Possibility of Production of Cemented Carbide under High Pressure and High Temperature	
C.M.F.G. Marques, G.S. Bobrovitchii and J.N.F. Holanda	380
Effect of the Impurities on the Phosphoric Acid Process	
N.J. Fernandes, M.A. Galvão, L.R. Araujo, C.H. Ataíde and M.A.S. Barrozo	386
Study of the Utilization of Chromium Plating Waste by Mechanical Activation	
M.T. Izumi, M.F. Hupalo, N.C.C. Ribeiro, J. de Jesus Correa, J.D.T. Capochi and O.M. Cintho	392
Processing of Ti Scaffolds by Sintering with Different Spacers	
C. Tojal, J.J. Candel, V. Amigó and F. Devesa	398
Techniques and Tips to Optimize, Control and Stabilize the Atmosphere inside a Continuous Sintering Furnace	
G.R.C. Silva, T. Philips, J.J. Dwyer and Z. Zurecki	404
Service Life Extension of Stainless Steel Wire Mesh Belts for Sintering Furnaces	
A. Wehr-Aukland, D.J. Bowe, A.M. Zaffuto, J. Gabler and G.R.C. Silva	412
Study of the Elasticity Module through Indentation Instrumented Technical of AlCuFeB Quasicrystalline Alloy	
B.A.S.G. de Lima, T.A. dos Passos, D.G. de Lima Cavalcante, S.J.G. de Lima and R.M. Gomes	424
Magnetic Properties and Hardness of Nanostructured WC-Co Cemented Carbide	
J.B. Manuel, M.J. Diniz, U.U. Gomes, A.d.S. Silva and J.H. Araújo	430
Microstructure and Wear of a Cu-Si-B Alloy and Diamond Composites Obtained in High Pressure and High Temperature Conditions	
A.L.D. Skury, M.G. de Azevedo, S.N. Monteiro and A.J. Sideris	436
Modeling the Densification of 316L Stainless Steels	
J.A. de Castro, N.K. Filho, D. Rodrigues and M.F. de Campos	440
Sintering of Cubic Boron Nitride Using Titanium Based Binders	
G.S. Bobrovinitchii, A.L.D. Skury, S.N. Monteiro and M.G. de Azevedo	446
Liquid Phase Migration during Diamond Powder Sintering by Infiltration Method	
A.L.D. Skury, G.S. Bobrovinitchii, S.N. Monteiro, M.G. de Azevedo and A. Silva	450
Plasma Sintering of the Steel Reinforced with Nanostructured Carbides	
A.d.S. Silva, E.O. de Almeida, U.U. Gomes, J.F. Silva Jr and I.A.F. de Medeiros	456
High-Pressure Assisted Sintering of Ti-20Si-10B and Ti-10Si-5B Powders	
W.L. Pereira, E.C.T. Ramos, A.S. Ramos, A.N. Silva, F.T.C. Lima and M. Filgueira	462
Overspray Powder Characterization of Fe-Based Glassy Alloy	
C.R.M. Afonso, C. Bolfarini, W.J. Botta Filho and C.S. Kiminami	468
Evaluation of Changes in Microstructural Coatings Deposited by Thermal Spray	
A.B.C. Arnt, M.R. da Rocha, E. Angioletto and J. Meller	476
Improvement of Tribological Properties by Titanium Nitride Deposition in Titanium Alloys Produced by Powder Metallurgy	
E.T. Galvani, V.A.R. Henriques and T.G. Lemos	480
Metal Recovery of Discarded Stacks and Batteries, Liquid-Liquid Extraction and Stripping Parameters Effect	
K. Provazi, D.C.R. Espinosa and J.A.S. Tenório	486
Study Morphologic and Microstructural of the System CeO₂-NiO Obtained by Polymeric Precursor Method	
A.C. Chaves, H.L. Lira, G.A. Neves, L.L.M. Sales, D.M.A. Melo and B.S. Barros	491

Chapter 2: Ceramics I

Influence of High Energy Milling on the Airflow Sensorproperty of the NBCa Ceramic	
C. Caldart, J. Souza, M.Z. Pellegrin, G.W. Duarte, M.R. Rocha, E. Angioletto, A.A. Pasa and M.A. Fiori	499

Applications of PZT Dielectric Ceramics in High-Energy Storage Systems	505
L.P. Silva Neto, J.O. Rossi and A.R. Silva	
Structural Characterization, and Magnetic Morphological Study of Ni⁺² Doped ZnO Synthesized by Combustion Reaction Application for DMS	
R. Torquato, E.S. Sagar, R.H.G.A. Kiminami and A.C.F. de Melo Costa	511
Effect of Attrition Milling and Calcination Temperature on Phase Composition of Strontium-and Magnesium-Doped Lanthanum Gallate	
S.L. Reis and E.N.S. Muccillo	516
Ceramic Coating Based on La, Sr and Co on Ferritic Stainless Steel for ITSOFC Interconnects	
M.d.A. Korb, R.N.F. Linhares Junior, E.E. Feistauer, L.S. Barreto, V.C. de Sousa, I.L. Müller and C.d.F. Malfatti	522
Magnetic Evaluation of Ni-Zn Ferrites Doped with Aluminium	
P.T.A. Santos, D. Cornejo, P.T.A. Santos, H.L. Lira and A.C.F. de Melo Costa	528
Electrical and Microstructural Properties of Varistors Based on Nanostructured Tetra-Needle Like Zinc Oxide Powders	
F.A. Lucca Sánchez, D.P. Tarragó, A.S. Takimi, V.C. Sousa and C. Pérez Bergmann	533
Variation of Resonant Frequency with Temperature in Ceramic Resonators Based on Ba₂Ti₉O₂₀ Compositions	
P.J. Castro, M.d.C.d.A. Nono, J.V.C. Souza and S.L. Mineiro	539
Porous Ceramic as Air Humidity Sensors	
R.d.M. Oliveira and M.d.C. de Andrade	545
Quantification of Phase Compositions Present in the System [(NiO)_x].[(CoO)_{1-x}].[(Al₂O₃)], 0.05 ≤ X ≤ 0.95, and the Effect in the Electrical Properties of Semiconductor as a Consequence of the CO⁺² Variation	
K.Q. Gomes, M. Bacelos and P.I.P. Filho	550
Production of Oxide Ceramic Matrix Composites by a Prepreg Technique	
P.O. Guglielmi, G.F. Nunes, M. Hablitzel, D. Hotza and R. Janssen	556
Fiber-Matrix Compatibility in LZSA Glass-Ceramic Matrix Composites	
S.M. Goushegir, P.O. Guglielmi, A.P.N. de Oliveira, D. Hotza and R. Janssen	562
RBMAO: A Novel Route for Porous Matrix Composites	
L.F. Berti, C.R. Rambo, E. Bazzo, R. Janßen and D. Hotza	568
Modeling of Ceramic Oxide Fiber Bundles Mechanical Properties	
J.G.P. da Silva, D. Hotza, R. Janssen and H.A. Al-Qureshi	574
Nickel-Polyaniline Composite Electrodes for Electrocatalytic Reduction of Hydrogen in Alkaline Media	
C.d.S. Torres, T. Falcade and C.d.F. Malfatti	581
Composites of Cement Matrix Containing Residue of PET Bottles and Stone Dust Replacing the Conventional Materials - Physical Chemistry and Mechanics Evaluations	
V.S. Pereira, C.R. da Silva Morais, P.A. Rodrigues, J.L.S. Aquino and F.F.D. Filho	587
La₂O₃ Reinforced Al₂O₃-TiO₂ Ceramic Composites for Inert Coating of Metallic Parts for Petroleum Industry	
Y.P. Yadava, C.E. Mendes, S.A.B.C. Rêgo and R.A.S. Ferreira	592
Sintering Study of Al₂O₃/NbC/Wc Micro-Nanocomposite	
V. Trombini, K.P.S. Tonello, T. Santos, J.C. Bressiani and A.H.d.A. Bressiani	597
Effects of Femtosecond Laser Irradiation on the Surfaces of Alumina and Alumina-Zirconia Composites	
A.A. Aguiar, N.B. de Lima, W. de Rossi, R.E. Samad, N.D. Vieira and F.J.C. Braga	603
Preparation and Characterization of Composite of Polyamide 6/Nickel Ferrite	
P.C.F. Menezes, T.R. de Gouveia Silva, A.C.F. de Melo Costa and E.M. Araújo	609
Synthesis and Characterization of Chitosan/Hydroxyapatite Biocomposites Obtained by Reaction of Precipitation	
R.d.C.A. Leal, A.C.B.M. Fook, I.V.S.R. Nascimento and M.V.L. Fook	614
Simplex Network Modeling for Press-Molded Ceramic Bodies Incorporated with Granite Waste	
L.G. Pedroti, S.N. Monteiro, C.M.F. Vieira, J. Alexandre, A.Z. Destafani and G.C. Xavier	619
Rheological Study of Iron Oxide Reinforced by Ceramic Nanoparticles	
L.E. Vieira, J.B.R. Neto and D. Hotza	625

Production of Borosilicate Glasses from Residues of Ornamental Rocks R.L.S. Blazutti Marçal, M.H. Prado da Silva, E. de Sousa Lima and L.H.L. Louro	629
Evaluation of the Thickness and Permeability in Asymmetric Membranes of TiO₂ Supported on Alumina E.P. de Almeida, N.L. de Freitas, R.H.G.A. Kiminami, H.L. Lira and A.C.F. de Melo Costa	634
Effect of Sense and Spacing in Parallel Scratches during Brittle Machining of Stoneware Tiles R.G. de Souza, G.D. Pinho, F.J.P. Sousa, M.C. Fredel and O.E. Alarcon	640
Rheological Analysis of Ceramics Suspensions with High Solids Loading L.F.G. Setz, L. Koshimizu, S.R.H. de Mello-Castanho and M.R. Morelli	646
Development of Ultrafiltration Tubular Ceramic Membrane Using in their Composition Granite Residue R.d.C. de Oliveira Lima, I. Oliveira Guimarães, H.L. Lira, G.A. Neves, C.D. da Silva and M.C. da Silva Farias	652
Characterization of LSCF-Based Composite and LSCF as Cathodes for Intermediate Temperature SOFCs R.A. Vargas, E. Bonturim, M. Andreoli, R. Chiba and E.S.M. Seo	657
Manufacture and Characterization of Alumina Ceramic Foams for Porous Burners A.M. Herrera, V. Moreno, A.A.M. Oliveira Jr., D. Hotza, O.A. Álvarez and J.A. Escobar	663
Forming of Cathodic Ceramic Film Using Airbrush for Application in High Temperature Solid Oxide Fuel Cells R. Chiba, R.A. Vargas, M. Andreoli and E.S.M. Seo	669
Influence of Firing Temperature on the Pozzolanic Activity of Kaolin Wastes S.L. Dias, I.O. Guimarães, S.S. Figueiredo, I.M.T. Bezerra, H.C. Ferreira and G.A. Neves	675
Enamel Development and Application on the Pottery of Icoaraci A.W. da Cruz Reis, M. Cruz Martelli and R.F. Neves	681
Porous Media of LZSA Glass-Ceramic for Burner Applications J.J. do Rosário, R.P.M. Guimarães, M.A. Leite, A.P.N. de Oliveira and M.C. Fredel	686
Influence of Substrate Temperature in the Morphology and Microstructure of YSZ Films Obtained on LSM Porous Substrate via Spray Pyrolysis T. Falcade, G.B. de Oliveira, D.P. Tarragó, V.C. de Sousa and C.d.F. Malfatti	691
Characterization and Technological Applications for Kaolin Processing Wastes M. Cruz Martelli and R.F. Neves	697
Use of Fine Wastes from Dimension Stone Industry in the Manufacture of Ceramic Tile A.C. de Almeida Prado, S.P.T. Borges, M.A. Neves, R.H. Soares and A.B. da Fonseca	703
Characterization of Geological Materials of São Fidélis/BR for Slip Use Z.M.P. Chrispim, L.L.P. Almeida, I.d.S. Ramos, M.d.G. Alves and J. Alexandre	710
Characterization of Blast Furnace Sludge for Clayey Ceramic Fabrication C.A.C.M. Dias, S.N. Monteiro, R.d.T. Faria Jr. and C.M.F. Vieira	715
Influence of Firing Conditions on Properties of Red Ceramic L.N. de Lima Santana, B.J. da Silva, W.P. Gonçalves, J.M. Cartaxo, B.S. Lira, R.C. dos Santos and R.R. Menezes	721
Bovine Bone Processing for Biofilter Application O. Ferreiro, F. Yubero, R.M. Balestra, M. Varella and M. Monteiro	727
Production, Sintering and Mechanical Properties of Ca₂MgWO₆, a New Complex Cubic Perovskite Ceramic J.C. da Silva Oliveira, R.A.S. Ferreira and Y.P. Yadava	731
Boron Nitride Ceramic Composite Obtained by High Pressure and High Temperature Sintering A.L.D. Skury, C.A.O. Monteiro, G.S. Bobrovinitchii and S.N. Monteiro	736
Evaluation of Compaction Behaviour of Spray-Dried Alumina by Hg Porosimetry and SEM A.A. Santos, I.C. Cosentino and L.A. Genova	740
Manufacture of YSZ-LSM Semi-Cell by Colloidal Processing L. Gómez, J. Escobar, M.T. Colomer and R. Moreno	746
8YSZ Tapes Produced by Aqueous Tape Casting V. Moreno, J.L. Aguilar and D. Hotza	752
The Effect of the Dust Cake Resistance on Fluid Flow Passing through the Filter Media S.M.S. Rocha, M.S. Bacelos, J.J.R. Damasceno, L.G.M. Vieira and M.L. Aguiar	758

Effect pH Variation of Powder Materials of the Composite Oxide $\text{Ba}_{(x)}\text{Sr}_{(1-x)}\text{Co}_{(y)}\text{Fe}_{(1-y)}\text{O}_{3-\delta}$ Obtained by Citrate-EDTA Method	764
E. Bonturim, R.A. Vargas, M. Andreoli and E.S.M. Seo	
Characterization of SOFCs: A Crystallographic Analysis and First Steps towards an Impedance Spectroscopy Approach	769
A. Ávila, J. Poveda, D. Gómez, D. Hotza and J. Escobar	
Characterization of New Occurrences of Clays in the City of Pedra Lavrada-PB, for Use as Ceramics Raw Materials	775
F.A. Silva, I.D.S. Pereira, S.L. Dias, G.A. Neves and H.L. Lira	
Synthesis of Mulfita Nanometric from Delaminated Bentonite-Study of the Percentage of Stages and Size of Crystal	781
J. Gomes, J.M. Cartaxo, R.R. Menezes, G.A. Neves, M.I. Brasileiro and L.N. de Lima Santana	
Alumina Foam Coated with Strontium Oxide as a Heterogeneous Catalyst	787
F.B. Bassetti, M.D.d.M. Innocentini, G.J. Pereira and F.d.S. Ortega	
Rheological Studies of Brazilian Clays in Water-Alcohol Suspensions	793
R.Y. Miyahara, P.G. Lins, T.S. Valera and S.M. Toffoli	
Study of the Sintering of Mixtures $\text{Al}_2\text{O}_3\text{-Nb}_2\text{O}_5$ and $\text{Y}_2\text{O}_3\text{-Nb}_2\text{O}_5$	799
R.F. Cabral, M.H. Prado da Silva, J.B. de Campos and E.S. Lima	
Zirconia Blocks Properties Used for CAD/CAM Dentistry Restorations	804
C. Santos, C.N. Elias, A.M. Melo and S.N. Monteiro	
Properties and Microstructure of Clay Ceramics with Granite Waste for Press-Molded Structural Block	809
L.G. Pedroti, S.N. Monteiro, C.M. Vieira and J. Alexandre	
Life Cycle Assessment of Ceramic Bricks	815
J.M. Gomes, A.L.F. Salgado and D. Hotza	
Production of Porous Silicon Carbide Ceramics by Starch Consolidation Technique	821
R.M. Mesquita and A.H.d.A. Bressiani	
Evaluation of the Influence of the Silane Drying Temperature on the Feldspar and Zirconia-Based Ceramics Surfaces	826
C.L. Melo-Silva, C.F. de Carvalho, C. Santos and J.F.C. Lins	
Effect of Surface Treatment of Yttria Stabilized Zirconia for Dental Prostheses	831
C.F. de Carvalho, C.L. Melo-Silva, C. Santos and J.F.C. Lins	
Characterization of the City of Red Clay Apodi-RN	837
F.M. Monteiro, T.G. Machado, J. Sousa, E. Harima, S.M. Valcacer and R.M. Nascimento	
Analysis of the Incorporation of Scheelite Residue in Kaolinitic Clay of Boa Saúde-RN	844
T.G. Machado, U. Umbelino Gomes, F.M. Monteiro, S.M. Valcacer and G.G. da Silva	
Sintering of $\text{B}_4\text{C}\text{-SiC}$ Composites with $\text{ALN}\text{-Y}_2\text{O}_3$ Addition	850
R.M. da Rocha and F.C.L. de Melo	
Effects of the Precursor Solution Addition Time in the Solothermal Synthesis of ZnO Nanocrystals	856
M. Gusatti, C.E. Maduro de Campos, G.S. Barroso, D.A. Ribeiro de Souza, C.C. Milioli, L.A. Silva, H.G. Riella and N.C. Kuhnhen	
Size Distribution of TiO_2 Nanoparticles Generated by a Commercial Aerosol Generator for Different Solution Concentrations and Air Flow Rates	861
J.V.M. Zoccal, F.d.O. Arouca, J.R. Coury and J.A.S. Gonçalves	
Modification of Brazilian Bentonite Clay for Use Nano-Biocomposites	867
D.D.S. Morais, R. Barbosa, K.M. Medeiros, E.M. Araújo and T.J.A. de Mélo	
Nanostructured YSZ Thin Film for Application as Electrolyte in an Electrode Supported SOFC	873
C.M. Halmenschlager, M.d.A. Korb, R. Neagu, C.P. Bergmann and C.d.F. Malfatti	
Influence of Bentonite Clay in the Formation of Polypropylene / Clay Nanocomposites	879
B.B. da Cunha, R.F. Damião, P. Agrawal, E.M. Araújo and T.J.A. de Mélo	
Applications of Fourier Transform Infrared and X-Ray Techniques to Analyze Nickel Ferrite Nanoparticles Produced	884
P.S.d.S. Porto, J.R.C. Proveti, E.P. Muniz, R.D. Pereira and D.R. Araujo	
$\text{ZnO}\text{-TiO}_2$ Composite Formed by Mixed Oxides via Polyol	888
A.M. Filho, D.I. dos Santos, M.Y. Kussuda, C. dos Santos Zanatta, J.G. Kim, D.Q. Shi and S.X. Dou	

Study of Nanocomposites of Polyamide 6.6/National Bentonite Clay L.R. Kojuch, K.M. Medeiros, D.D.d.S. Morais, E.M. Araújo and H.d.L. Lira	894
Preparation of Organoclay for Polymeric Nanocomposites Membranes K.M. Medeiros, T.R. de Gouveia Silva, L.R. Kojuch, E.M. Araújo and H.L. Lira	899
Synthesis and Characterization of Strontium and Calcium Titanate Polycrystalline Powders by a Modified Polymeric Precursor Technique R. Muccillo and J.R. Carmo	904
Ceramic Processing of NBC Nanometric Powders Obtained by High Energy Milling and by Reactive Milling K.P. dos Santos Tonello, V. Trombini, A.H.d.A. Bressiani and J.C. Bressiani	909
Ceramic Compacts Based on Sintered ZrO₂ Nanopowder G.S. Bobrovinitchii, A.L.D. Skury, S.N. Monteiro and M.G. de Azevedo	914
Performance of Nanostructured Diamond Composites in Wear Tests A.L.D. Skury, S.N. Monteiro, M.G. de Azevedo, L.B. Motta and G.S. Bobrovinitchii	919
Use of Niobium Oxide as a Binder in the Production of Diamond Nanostructured Composites A.L.D. Skury, G.S. Bobrovinitchii, M.G. de Azevedo and S.N. Monteiro	924
Purification of a Brazilian Smectite Clay P.G. Lins, T.S. Valera and N.R. Demarquette	929
Effect of Glassy Phase Additions to Zirconia on its Sintering Behavior and Microstructure V.L.P. de Oliveira, M.H. Prado da Silva, E. de Sousa Lima, C. dos Santos and L.H.L. Louro	935
Effect of Glassy Phase Additions to Zirconia on its Mechanical Properties V.L.P. de Oliveira, M.H. Prado da Silva, E. de Sousa Lima, C. dos Santos and L.H.L. Louro	940
Mechanical Characterization of Zirconia Synthesized by the Sol-Gel Process A.M.B. da Silva Antunes, C.A. Reis Pereira Baptista and S.P.T. Borges	945
Microstructural Evaluation of Clayey Ceramic Incorporated with Powder Waste from the Sintering Plant of a Steel-Making Industry C.M.F. Vieira, M.M. Ribeiro and S.N. Monteiro	951

Chapter 3: Ceramics II

Firing Behaviour of a Clayey Ceramic Body for Rustic Floor Tiles C.M.F. Vieira and S.N. Monteiro	959
Reformulation of a Kaolinitic Clay Ceramic Body with Sand and Flux Clay for Roofing Tiles Production C.M.F. Vieira and S.N. Monteiro	965
Microstructural and Magnetic Analysis Ni-Zn Ferrite Sinterized in the Conventional and Microwave Oven V.C.S. Diniz, D.A. Vieira, R.H.G.A. Kiminami, D. Cornejo and A.C.F. de Melo Costa	971
Sintering of Ni-Zn Ferrite by Microwave Energy V.C.S. Diniz, D.A. Vieira, R.H.G.A. Kiminami, D. Cornejo and A.C.F. de Melo Costa	977
Effect of the Dwell Temperature on Spark Plasma Sintered CaCu₃Ti₄O₁₂ E. de Carvalho, M. Bertolete, I.F. Machado and E.N.S. Muccillo	982
Effect of the Dry Bulk Density on the Fired Properties of Clayey Ceramics V. Scarpini, R.M. Pinheiro, S.N. Monteiro and C.M.F. Vieira	988
Use of Ash from the Incineration of Elephant Grass (<i>Pennisetum purpureum shaum</i>) into Clayey Ceramic A.M.F.D. Silva, L.S. Lovise, S.N. Monteiro and C.M.F. Vieira	993
Characterization and Thermal Behavior of Red Ceramic Incorporated with Flat Glass Waste T.C. da Costa Caldas, A.S.C. Morais, S.N. Monteiro and C.M.F. Vieira	999
Influence of Heating Rate and Burning Temperature on the Thermal Decomposition of Textile Sludge M.E.D. Altidis, C.R. da Silva Morais, B.F.R. Guedes, P.A. Rodrigues and M.A.F. Souza	1005
Microstructure of Ceramics TiO₂ Obtained by Protein Consolidation J.G.A. Santana, É. de Campos, E. Ferreira de Lucena and R.P. Mota	1010
Wollastonite as a Flux for Ceramics Bodies S.R. Bragança, H.C.M. Lengler and C.P. Bergmann	1016

Effect of TiO₂ and TiB₂ on Pressureless Sintering of B₄C	1022
R.M. da Rocha and F.C.L. de Melo	
Sintering Behavior of LZS Glass-Ceramics	1028
J.D. Teixeira, A.P.N. de Oliveira, L. Boehs, F.R. Cesconeto, C. Siligardi and M.A. Pereira	
Sintering of Alumina Powders Obtained by a Pechini-Type Method with Addition of Seeds	1034
R.E.P. Salem, K.A. Guilherme, A.S.A. Chinelatto and A.L. Chinelatto	
Use of Silicon Nitride as an Additive in the Production of cBN Compacts for Cutting Tools	1040
A.L.D. Skury, S. Chagas, G.S. Bobrovinitchii and S.N. Monteiro	
Improvement of Conventional Polycrystalline Diamond Composites by Nanodiamond Incorporation	1045
A.L.D. Skury, G.S. Bobrovinitchii, S.N. Monteiro and M.G. de Azevedo	
Technical Performance of High Pressure and High Temperature Processed TiC Ceramic Tools	1048
G.S. Bobrovinitchii, A.L.D. Skury, S.N. Monteiro and M.G. Azevedo	
Influence of Cu and Ti Doping on Hard Metal Matrix of Diamond Embedded Composites for Drilling Tools	1053
A.L.D. Skury, G.S. Bobrovinitchii, M.G. de Azevedo and S.N. Monteiro	
Influence of the Granite Waste into a Clayey Ceramic Body for Rustic Wall Tiles	1057
M.C.B. Gadioli, M.C. de Aguiar, A. de Andrade Pazeto, S.N. Monteiro and C.M.F. Vieira	
Microstructural and Dielectric Properties of Conventional and Microwave Sintered CaCu₃Ti₄O₁₂ Ceramics	1063
D. Thomazini, M.V. Gelfuso, G.M. Lima and J.A. Eiras	
Continuum Isotropic Elastic Model for Sintering of Ceramic Materials	1069
V.C. Serrano, J.A. Escobar and G.O. Porras	
Sintering of Yttria Stabilized Zirconia in Tetragonal Phase by Two Steps Sintering	1075
E. Lena, A.L. Chinelatto, A.S.A. Chinelatto and A. Przybysz	
Influence of CAD/CAM Grinding in the Performance of Sintered Dental Zirconia Framework	1081
C.N. Elias, A.M. Melo and C. dos Santos	
Microstructural and Mechanical Properties Changes of Silicon Nitride Based Ceramic Using Post-Sintering Heat Treatment	1085
J.V.C. Souza, O.M.M. Silva, E.A. Raymundo and J.P.B. Machado	
Influence of Addition of Polymeric Precursors of Ceramics on Sintering of Al₂O₃	1092
A.L.E. Godoy, J.C. Bressiani and A.H.d.A. Bressiani	
A Critical Analysis of the Importance of Compaction-Pressure on the Dimensional Distortion of ZrO₂-Y₂O₃ Dental Prostheses	1098
A.A.A.P. Silva, A.S. Rodrigues, R.X. Freitas, S.E.N. Cury, I.V.F. Suhett and C. Santos	
Evaluation of Mechanical Properties of Dental Feldspathic Porcelains for Metal and Zirconia Core	1104
A.A. de Almeida-Junior, G.L. Adabo, B.R. Galvão, D. Longhini and C. dos Santos	
Synthesis and Characterization of SrO-Supported Al₂O₃ Applied as Heterogeneous Catalysts	1108
G.J. Pereira and F.d.S. Ortega	
Characterization of Hydroxyapatite-Titanium Oxide Scaffolds Made by the Polymeric Sponge Method	1113
A.G. de Sousa Galdino and C.A.C. Zavaglia	
Characterization Optical of ZnAl₂O₄ Doped with Eu³⁺ Functionalized with Chitosan	1119
P.T.A. Santos, C.M. Furtado, M.O. Rodrigues and A.C.F.M. Costa	
Antibacterial and Antifungal Glass with High Biocide Performance: Increased Antimicrobial Efficiency by Acid Activation	1125
E. Mendes, C.M. Oliveira, C.G. Tachinski, M.P. Fernandes, R. Piletti, H.G. Riella and M.A. Fiori	
Primary Implant Stability in Calcium Phosphate Cement: Clinical, Radiographic and Histological Analysis	1131
V.B. Coutinho, J.A. Silva, L.A. Santos and M.V.L. Fook	
Degradation of Y₂O₃-Stabilized ZrO₂ Ceramics in Artificial Saliva: ICP Analysis of Dissolved Y³⁺ and Zr⁴⁺ Ions	1136
L.E. Mukaeda, S.P.T. Borges, A. Robin, H.J. Izario, F.S. Salazar and C. dos Santos	
Development of Polymer/Nanoceramic Composite Material with Potential Application in Biomedical Engineering	1142
D.V. Santos, A.P.M. Casadei, R.V. Pereira, A. Aragones, G.V. Salmoria and M.F. Fredel	

Dispersed Hydroxyapatite Bioglass 45S5 Composites: Comparative Evaluation of the Use of Bovine Bone and Synthetic Hydroxyapatite	1147
A.C. da Silva, A.H. Aparecida and F.J.C. Braga	
Extracellular Synthesis of Silica Oxide Particles by <i>Fusarium oxysporum</i> from Rice Husk Ash	1153
T. Pineda, C.H.L. Soares, D. Hotza, A.E. Casas-Botero, M. Ramírez-Carmona and M. Torres-Taborda	
Lithium Disilicate Bioceramic Obtained from Alternative Silica Source, the Rice Husk	1158
F.A. Santos, C. dos Santos, D. Rodrigues Júnior, D.G. Pinatti, E. Davim and M.H.F.V. Fernandes	
Synthesis of Alpha-Tricalcium Phosphate by Wet Reaction and Evaluation of Mechanical Properties	1164
M.B. Thürmer, R.S. Vieira, J.M. Fernandes, W.T.G. Coelho and L.A. Santos	
Properties of Calcium Phosphate Cement with Addition of Dispersant and Hydrogel	1170
J.M. Fernandes, W.T. Coelho, M.B. Thürmer, R.S. Vieira and L.A. Santos	
Polydimethylsiloxane/Calcium Phosphates Composites: Effect of the Fillers Modification on the Cross-Linking and Surface Energy	1175
O.F. Bareiro and L.A. Santos	
Effect on Mechanical Strength of Tricalcium Phosphate Cement by Additions of Sodium Alginate	1181
W.T. Coelho, J.M. Fernandes, R.S. Vieira, M.B. Thürmer and L.A. Santos	
Evaluation of α-Tricalcium Phosphate Cement Obtained at Different Temperatures	1187
R.S. Vieira, W.T.G. Coelho, M.B. Thürmer, J.M. Fernandes and L.A. Santos	
Preparation of Al_2TiO_5-Al_2O_3 and Al_2TiO_5-Al_2O_3-TiO_2 Ceramics by High-Energy Ball Milling and Sintering	1193
P.C.R. de Oliveira Caltabiano, M.A. de Souza, R.F.C. Marques, M.G.N. Campos, L.R. de Oliveira Hein and A.S. Ramos	
Obtaining of Nanoapatite in Ti-7.5Mo Surface after Nanotube Growth	1199
A.L.A. Escada, J.P.B. Machado, R.Z. Nakazato and A.P. Rosifini Alves Claro	
Study of the Spheronization Process of Glass Particles for Internal Selective Radiotherapy Application	1205
E.C. Barros F, F.F. Sene and J.R. Martinelli	
Subcritical Crack Growth Velocities (v-K Curves) of Dental Bioceramics	1211
H.N. Yoshimura, C.C. Gonzaga, P.F. Cesar and W.G. Miranda	
Ferrite $\text{Ni}_{0.5}\text{Zn}_{0.5}\text{Fe}_2\text{O}_4$ Synthesized by Combustion Reaction in a Microwave Oven Using Urea and Glycine as Fuel: Influence of Power	1217
D.A. Vieira, V.C.S. Diniz, R.H.G.A. Kiminami, D.R. Cornejo and A.C.F. de Melo Costa	
New Routes Study for Synthesis of Molecular Sieves Type Al-MCM-41 and Al-SBA-15	1222
R.P.R. de Miranda, J.O.P.N. Santos, J.J.N. Alves, R.P. Brito and B.V. de Sousa	
Molecular Sieves (MCM-41, Al-MCM-41) Characterization Using Different Silica Sources	1228
J.O.P.N. Santos, R.P.R. de Miranda, D.S. Figueiroa, C.E. Pereira and B.V. de Sousa	
Preparation and Characterization of Zeolite ZSM-5 in the Template: Effect of Crystallization Time on the Structure and Textural Properties	1233
A.B. Sousa, A.S. Barbosa, M.G. Freire Rodrigues and H.M. Laborde	
Evaluation of the Bioactivity Behavior of a 48 Wt %SiO_2 Bioglass through Experiments in Simulated Body Fluid	1238
R. Borges, A.C. da Silva and J. Marchi	
Evaluation of the Apatite Coating on Silicon Nitride Based Ceramics Sintered with Re_2O_3 Additives ($\text{Re} = \text{Y, La, Yb}$)	1243
J. Marchi, C.C. Guedes e Silva, E.C.S. Rigo, A.H.d.A. Bressiani and J.C. Bressiani	
Influence of the Urea Content in the Combustion Synthesis for Preparation of NiAl_2O_4 Support Catalytic to Steam Reforming of Methane	1249
E. Leal, H.M.C. Andrade and A.C.F. de Melo Costa	
Influence of Preparation Method of the CeO_2 over their Structural Characteristics	1256
L.S. Neiva, A.N. Simões, M.J.C. Oliveira, M.A. Ribeiro, E. Leal and L. Gama	
Synthesis of ZnAl_2O_4 Catalytic Support by Combustion Reaction Using Different Fuels	1260
E. Leal, B.B. Dantas, L.S. Neiva, R.H.G.A. Kiminami and A.C.F. de Melo Costa	
Influence of the Ratio between the Amounts of Reagent Total/H_2O to Obtain Ferrites $\text{Mn}_{0.65}\text{Zn}_{0.35}\text{Fe}_2\text{O}_4$ by Combustion Reaction	1266
R.L.P. Santos, E. Leal, A.T.C. Silva and A.C.F. de Melo Costa	

Comparative Analysis of Sintering $Mn_{0.65}Zn_{0.35}Fe_2O_4$ Ferrite by Microwave Energy and N₂ Atmosphere	1272
R.L.P. Santos, M.M. Tavares, D. Cornejo, R.H.G.A. Kiminami and A.C.F. de Melo Costa	
Influence of Citric Acid/Metallic Cations Ratio in the Structure, Morphology and Photocatalytic Activity of TiO₂ Prepared by Pechini Method	1278
P.C. Ribeiro, A.C.F. de Melo Costa, J.M. Sasaki, R.H.G.A. Kiminami and H.L. Lira	
Synthesis and Characterization of Cu_{0.5}Zn_{0.5}Fe₂O₄ Ferrite for Application as a Soft Magnetic Material	1284
A.C.F.M. Costa, A.D.S. Costa, K.M.S. Viana, F.A. Portela, O. Paiva-Santos and R.H.G.A. Kiminami	
Preparation of NiFe₂O₄ and ZnFe₂O₄ Samples by Combustion Reaction and Evaluation of Performance in Reaction Water Gas Shift Reaction - WGSR	1290
P.T.A. Santos, A.C.F. de Melo Costa and H.M.C. Andrade	
Synthesis and Characterization of Gadolinia-Doped Ceria with Manganese Addition	1296
J.D. Yang, R.A. Rocha, R. Muccillo and E.N.S. Muccillo	
Evaluation of Catalyst Ni_{0.4}Cu_{0.1}Zn_{0.5}Fe₂O₄ on Methyl Esterification of Free Fatty Acid Present in Cottonseed Oil	1302
J. Dantas, A.S. Silva, P.T.A. Santos, J.R.D. Santos, D.C. Barbosa, S.M.P. Meneghetti and A.C.F. de Melo Costa	
Synthesis of Inorganic Pigments from Glass-Ceramics of System Li₂O-ZrO₂-SiO₂ and Waste from Metallurgical Industry	1308
T.J. Schmitt, M. Tomiyama, M.V. Folgueras and F.L. Bahr	
Precursors Influence on CaCu₃Ti₄O₁₂ Synthesis	1313
M.V. Gelfuso, G.M. Lima and D. Thomazini	
Influence of Organic Solvent on Solvothermal Synthesis of Samaria and Gadolinia Doped Ceria – Nickel Oxide Composites	1317
A.R. Arakaki, S.M. Cunha, W.K. Yoshito, V. Ussui and D.R.R. Lazar	
Combustion Synthesis of ZnAl₂O₄ Catalyst Using Glycine as Fuel for the Esterification and Transesterification of Soybean Oil: Influence the Form of Heating	1323
J.P. Coutinho, M.C. Silva, S.M.P. Meneghetti, E. Leal, A.C.F. de Melo Costa and N.L. de Freitas	
Combustion Synthesis of LSM Powders from a Precursor Solution with Mixed Fuels	1329
D.P. Tarragó, C.d.F. Malfatti and V.C. de Sousa	
Processing and Characterization of Al₂O₃-YAG Composite	1334
E.S. Lima, L.H.L. Louro, J.B. de Campos, R.R. de Avillez, S.N. Monteiro and C.A. da Costa	
Study of Polymorphs of Zirconia in the System ZrO₂: wt% Re₂O₃ Obtained by Polymeric Precursor Method	1340
R.A. Muñoz, J.E. Rodriguez and C.R.M. Silva	
New Features Regarding the High Pressure and High Temperature Diamond Synthesis Growth in the Ni-Mn-C System with Iron Additions	1345
A.L.D. Skury, Q.F.S.F. Rodrigues, G.S. Bobrovinitchii and S.N. Monteiro	
Synthesis of Zeolitic Materials Using as a Source of SiO₂ and Al₂O₃ Calcined Kaolin Waste	1349
E.A. Hildebrando, R.S. Angélica, R.F. Neves and F.R. Valenzuela-Díaz	
Carbon Nanostructures Synthesize from Coconut Coir Dust Mediated by Layered Clays through Hydrothermal Process	1355
G.B. Barin, T.S. Bispo, I.d.F. Gimenez and L.S. Barreto	
Paramagnetic Properties of Synthetic Diamond Crystals Obtained in Ni-Mn-C System with Iron Doping	1360
A.L.D. Skury, G.S. Bobrovinitchii, S.N. Monteiro and Q.F.S.F. Rodrigues	
Influence of Rhombohedral Graphite Phase on the Diamond Nucleation	1364
L.L.P. Almeida, A.L.D. Skury, S.N. Monteiro and G.S. Bobrovinitchii	
Novel High Pressure Multi-Anvil Device for Diamond Production	1369
G.S. Bobrovinitchii, A.L.D. Skury and S.N. Monteiro	
Synthesis of ZrO₂: wt% Re₂O₃ Powders by the Heterogeneous Coprecipitation Technique	1375
R.A. Muñoz, J.E. Rodriguez and C.R.M. Silva	
Analysis of the Hydroxyapatite Incorporate MTA Dental Application	1381
C.M.B. Barros, S.V. de Oliveira, J.B. Marques, K.M. de Souto Viana and A.C.F. de Melo Costa	
Synthesis and Characterization of Porous ZrO₂-Y₂O₃-TiO₂ Ceramics Prepared by Coprecipitation	1387
L.M. Medeiros, F.S. Silva, J. Marchi, W.K. Yoshito, D.R.R. Lazar and V. Ussui	

Evaluation of Calcined Temperature on the Structural and Morphological Characterization of TiO₂ Doped with Zr Nanopowders Obtained by the Pechini Method	1393
M.A.R. Bonifácio, L.S. Neiva, R.H.G.A. Kiminami, J.B.L. de Oliveira and L. Gama	
Ceramic Material from Sewage Sludge as Support Material Supply Water Filtration	1398
L.C. de Moraes, A.H. Rosa, L.F. Fraceto, A.C.T. Toledo and V. Campos	
Influence of Addition of Chemically Treated Leather Shaving in the Portland Cement Mortars Characteristics	1402
D.V. Ribeiro, S.Y. Yuan and M.R. Morelli	
Effect of Calcined Red Mud Addition on the Hydration of Portland Cement	1408
D.V. Ribeiro, J.A. Labrincha and M.R. Morelli	
Classification and Use of Fine Wastes from Dimension Stone Industry	1412
M.A. Neves, S.P.T. Borges and P.B. de Souza	
Rheological Properties of a Sodium Bentonite and Lactose Aqueous Dispersion	1418
L.C. de Moraes, A.H. Rosa, L.F. Fraceto, A.C.T. Toledo and V. Campos	
Soil-Lime Blocks Using Construction Residues - Durability Study	1422
S.S. Figueiredo, C.G. Silva, I.M.T. Bezerra, S.L. Dias, G.A. Neves, R.R. Menezes and L.N. de Lima Santana	
Silicon Carbide Surface Modification by Nitrogen Plasma Expander	1428
C.N. Santos, E.M. Marins, M. Machida, É. de Campos, R.P. Mota, F.C.L. de Melo and L.R.O. Hein	
CVD Diamond Films Growth on Silicon Nitride Inserts (Si₃N₄) with High Nucleation Density by Functionalization Seeding	1433
R.A. Campos, A. Contin, V.J. Trava-Airoldi, J.R. Moro, D.M. Barquete and E.J. Corat	
Purification and Characterization of a Natural Brazilian Clay Blend	1439
M.G. Silva-Valenzuela, F.M.S. Carvalho, I.J. Sayeg, L.G. Sant'Anna and F.R.V. Diaz	
Purification of Bentonite Clays from the District of Cubati, PB, for Obtainment of Organoclays for Use in Drilling Fluids	1444
J.M.R. de Figueirêdo, C.D. da Silva, I.A. da Silva, H.S. Ferreira, G.A. Neves and H.C. Ferreira	
Preparation of Organovermiculite for Adsorption of Organic Compounds	1451
A.L. Silva, F.K.A. de Souza, G.A. Neves, R.R. Menezes, H.L. Lira and L.N. de Lima Santana	
Study by Weibull Statistics of Ceramic Products from Rio Grande do Norte, Brazil	1457
E.C. de Souza Tavares, C.P.T. Cruz and U.U. Gomes	
Bi₄Ti₃O₁₂ Particles Size Influence on Electrorheological Response	1462
G.M. da Silva Luz, M.V. Gelfuso, D. Thomazini, P.P. Pinto and A.J.F. Bombard	
Influence of Organophilization Process Variables in Bentonite Clays from Cubati-PB	1467
C.D. da Silva, R.d.C. de Oliveira Lima, J.M.R. Costa, G.A. Neves and H.C. Ferreira	
Influence of Exchanged Surfactant on the Structure and Adsorption Properties of Brazilian Green Mud Clay	1473
M.F. Mota, F. Machado and M.G. Freire Rodrigues	
Effect of Addition of Quasicrystals in the Formation of Geopolymer Matrix Composites	1479
A.N. Silva, J.D. Altidis, R.R. Menezes, T.A. dos Passos, S.R. de Barros and S.J.G. de Lima	
Porous Anisotropic Alumina Ceramic Membrane: Preparation and Characterization	1485
V.V. Cordeiro, M.C. da Silva, H.L. Lira, N.L. de Freitas and A.C.F. de Melo Costa	
Study of the Application of Non-Plastic Clays from Poços De Caldas - MG	1490
S.C. Maestrelli, C.D. Roveri, N.A. Mariano, L.M. Faustino, G.F. Aielo, L.P.A. Pinto, C. Manochio, A.G.P. Nunes, T.M.L. Cal and F.F. Ribeiro	
Transition Metals in Glass Formation	1496
A.C. da Silva, S.C. Santos and S.R.H. de Mello-Castanho	
Coating Mortar Using Rice Husk Ash as Binding	1502
I.M.T. Bezerra, S.S. Figueiredo, J.B.Q. de Carvalho, G.A. Neves, J. de Souza and R.R. Menezes	
Alumina Residue Characterization to Produce Tubular Ceramic Membranes	1508
I. Oliveira Guimarães, H.L. Lira, S.K. da Silva, S.L. Dias and R.d.C. de Oliveira Lima	
Use of Waste Flat Glass in the Formulation of Masses for White Porcelain in Partial Replacement of Feldspar	1514
V. de Sousa Porto, M.d.S.L. Cavalcanti, T.B. Cruz, C.R. da Silva Morais and L.N. de Lima Santana	

Estudy of Natural and Degradation by Salt Spray of Red Ceramics Incorporated with Ornamental Rock Waste	1519
L.M. Altoé, G.d.C. Xavier, F.S. Albuquerque, P.C. de Almeida Maia, J. Alexandre and L.G. Pedroti	
Electronic Waste: Characterization of the Glass of Cathode Ray Tube Computer for Making Decorative Pieces by Recycling	1525
N.M.O. Lima, C.R. da Silva Morais, L.M.R. Lima and A.V. Albuquerque	
Study of Adsorption Kinetics of Heavy Metals in Acid Drainage from Coal Mining in Type A Zeolites	1530
L. Antunes, E. Angioletto, C.R. Melo, M.R. da Rocha, A.C. Madeira and E. Mendes	
Mixture of Granite Waste and LD Steel Slag for Use in Cement Production	1535
A. da Costa Borges, M.C.B. Gadioli, L.A.B. Pinto and J.R. de Oliveira	
Use of Calcined Tannery Sludge Containing Chromium Compounds in Soda-Lime Glass Fabrication	1541
M.M. Chambi and S.M. Toffoli	
Tire Rubber Powder/ Rice Husk Ash Polymer Compound	1547
H. Wiebeck, F.R. Valenzuela-Díaz, F.J. Esper, G.R. Martín-Cortés, W.T. Hennies and M.V.V. Costa	
Systematic Characterization of Different Quaternary Ammonium Salts to be Used in Organoclays	1552
R. Barbosa, D.D. Souza, E.M. Araújo and T.J.A. de Mélo	
Development of Organoclays for Use in Oil-Based Drilling Fluids	1557
M.A.F. Cardoso, H.S. Ferreira, I.A. da Silva, H.C. Ferreira and G.A. Neves	
Nonionic Surfactant Organoclays Obtaining from Pedra Lavrada District Clays, PB, Brazil	1563
I.A. da Silva, J.M.R. Costa, M.A.F. Cardoso, H.S. Ferreira, G.A. Neves and H.C. Ferreira	
Evaluation of the Permeation of O₂, Co₂ and Water Vapor in Membranes of Polyetherimide/Clay National Nanocomposites	1570
V.d.N. Medeiros, A.M.D. Leite, R.A. da Paz, E.M. Araújo and L.A. Pessan	
Investigation and Structural Characterization of Nickel Ferrite Nanoparticles Produced by Proteic Sol-Gel Method Using Two Kinds of Organic Precursors	1574
J.R.C. Proveti, P.S.d.S. Porto, E.P. Muniz, R.D. Pereira and L.C.A. Gobbi	
Characterization of Fluorescent Lamp Glass Waste Powders	1579
A.S.C. Moraes, T.C. da Costa Caldas, S.N. Monteiro and C.M.F. Vieira	
Characterization of Industrial Wastes, Glass and Ceramic Wool	1585
N. Evangelista, J.A.S. Tenório, J.R. Oliveira, P.R. Borges and T.C.M. Ferreira	
SEM, XRF, XRD, Nitrogen Adsorption, Fosters Swelling and Capacity Adsorption Characterization of Cloisite 30 B	1591
A.C.L. Patrício, M.M. da Silva, A.K.F. de Sousa, M.F. Mota and M.G. Freire Rodrigues	
Effect of Gel Chemistry on the Machinability of Green SiC Parts Produced by Gelcasting	1596
A.M. Riviello and F.d.S. Ortega	
The Behavior of Galvanized Steel Coated with a Double and Triple Layer of Hybrid Films	1604
S.R. Kunst, R.F. dos Santos, C.T. Oliveira, E.L. da Silva, I.L. Müller and C.d.F. Malfatti	
Elaboration and Characterization of Siloxane-PMMA Hybrid Films on Tinplate Substrates	1610
S.R. Kunst, R.F. dos Santos, D. Vieira, C.T. Oliveira, V.H.V. Sarmento and C.d.F. Malfatti	
Effect of Surface Properties on Particle Growth Kinetics for Polymer Coating in Spouted Bed	1616
B.B. Matheus and C.d.S.R. Sandra	
Study of Titanium Surface Topography Influence on Biomimetic Coating Deposition	1622
R.M. Balestra, A.A. Ribeiro, M.C. Andrade, L.C. Pereira and M. Varella	
Modeling of the Fischer-Tropsch Synthesis Aiming to Predict the Production of Paraffins and Olefins	1628
D.A.M.F. Ventura, M.K.V.A. dos Santos, J.J.N. Alves, A.T.P. Neto and B.V. de Sousa	
Containerless Solidification of Eutectic PbSn Alloy Droplets in a Drop Tube	1633
R.C. Toledo, F.E. de Freitas, C.Y. An and I.N. Bandeira	
The Influence of the Operating Parameters of Titanium Electropolishing to Obtain Nanostructured Titanium Surfaces	1638
L.M. Antonini, R.G. Mieleczarski, C. Pigatto, I.L. Müller and C.d.F. Malfatti	
Characterization and Efficiency Evaluation of Regenerated Filter Media	1643
P.M. de Barros, E.H. Tanabe and M. Lopes Aguiar	

Analysis of the Behavior of a Metallic Filter in Particle Removal under High Pressure Conditions	
E.H. Tanabe, M.D.d.M. Innocentini, P.M. de Barros, M. Lopes Aguiar and J.R. Coury	1648
Study of Iron Nanopowders into Fluids of Industrial Lubrication	
M.B. Oliveira, M.A.B.B. Souza, J.A. de Castro and A.J. da Silva	1654
A Theoretical Study on BTX Adsorption into the Surface of Compacted Activated Carbon Powders	
I. de Oliveira da Mota and J.A. de Castro	1660
Study of the Influence of Different Synthesis Conditions of PANI-HF in its Property as Ammonia Gas Sensor	
G.W. Duarte, C.G. Tachinski, A.M. Naspolini, E.C. Consenso, F.Z. Silveira, H.G. Riella and M.A. Fiori	1666
Morphological Characterization of UNCD on Etched <100> Silicon	
U.A. Mengui, N.G. Ferreira, M.R. Baldan and E.J. Corat	1671
Determination of the Chemical and Mineralogical Composition of Drilled Cuttings at Different Points throughout the Solids Control Process	
M.S. Pereira, C.M.A. Panisset, T.B. Lima and C.H. Ataíde	1677
Physical and Chemical Characterization of Sorghum Bagasse	
M.R. Miranda, C.R. Cardoso and C.H. Ataíde	1683
Size, Shape and Density Characterization of Tobacco Waste Particles	
C.R. Cardoso and C.H. Ataíde	1689
Modeling the Transport Phenomena of TiO₂ Nanoparticles into Leachate of Municipal Waste Landfills	
J.A. de Castro, B.A. Pereira, E. Tassi, R. Pini, A.S.F. Araujo and I.C.P. Valadão	1695
Study of the Processing Conditions Used to Incorporate an Antimicrobial Additive in Thermoplastic Polymer	
G.W. Duarte, C.G. Tachinski, A.M. Naspolini, E.C. Consenso, R.F. Salvan, V.H. Cordova, R. Piletti, H.G. Riella and M.A. Fiori	1701
Influence of the Polymer Content in the Preparation of Polymeric Membranes	
K.C. Nóbrega, A.M.D. Leite, E.M. Araújo, H.d.L. Lira and R.A. da Paz	1706
Influence of Molecular Weight of Polyamide 6 in Obtaining of Nanocomposites with National Organoclay	
R.A. da Paz, E.M. Araújo, L.A. Pessan, T.J.A. de Melo, A.M.D. Leite and V.d.N. Medeiros	1711
Factorial Design for Experimental Planning of Sludge Waste Incorporated Cement Pavements	
A.V. Bahiense, S.N. Monteiro, C.M.F. Vieira and J. Alexandre	1717
Effect of Ornamental Rock Sludge on the Strength and Densification of Cement Pavement Blocks	
A.V. Bahiense, J. Alexandre, C.M.F. Vieira and S.N. Monteiro	1723
Effect of Alumina Ceramic Powder Dispersion on Mechanical Properties of PolyPropylene Polymers	
G.D.A. Silva, K.G.B. Alves, Y.B. Almeida, R.A. Sanguinetti and Y.P. Yadava	1729
Process Variable Influence on Fertilizer Drum Granulation Performance	
R.F. Rodrigues, S. Leite, J.G. Oliveira, C.H. Ataíde and M.A.S. Barrozo	1734
Recycling of Electric Arc Furnace Dust by Adding to Hot Metal	
V.d.P.F.M. Sobrinho, J.R. de Oliveira, V.B. Telles, F.F. Grillo, J.A.S. Tenório and D.C.R. Espinosa	1740
Nanoparticles of Carbonaceous Minerals in Vulcanized Rubber Products	
G.R. Martín-Cortés, F.J. Esper, W.T. Hennies, G. Tomi and F.R. Valenzuela-Díaz	1746
Nanomaterial as Microbial Agent to Paints	
W.C. da Silva and F.R.V. Díaz	1751
Mechanical Properties and Abrasive Behavior of Diamond Incorporated Epoxy Composites	
C.R. Amaral, R.J.S. Rodríguez, L.P.B. Junior, A.L.D. Skury and S.N. Monteiro	1757
Discrete Simulation of the Infrastructure for Diamond Embedded Metallic Saw Production	
A.C.A. Sá, J.J.A. Rangel, A.L.D. Skury, G.S. Bobrovichii and S.N. Monteiro	1763
Hybrids Films Obtained on ZnNi Substrates: Effect of Withdrawal Speed	
S.R. Kunst, C.T. Oliveira, R.F. dos Santos, J.P. Bonino, F. Ansart and C.d.F. Malfatti	1769
Preparation of UHMWPE/MMT Nanocomposites via Mechanical Alloying	
C.A.S. de Lima, O.M. Cintho and B. de Melo Carvalho	1775

Influence of Bentonite Clay Content in HDPE Nanocomposites	1780
S.V. de Oliveira, M. Costa da Silva, G.F. Brito, A.G.B. de Lima and E.M. Araújo	
Study Intercalation and Mechanical Properties of Nanocomposites of HDPE/Organoclay	1785
M. Costa da Silva, S.V. de Oliveira, T.J.A. de Melo and E.M. Araújo	
Physicochemical and Environmental Characterization of Industrial Wastes in Powder	1789
N.E. Quaranta, M.G. Caligaris, N. Lalla, G. Pelozo and A. Cristobal	
The Influence of Ageing in Pseudoboehmites Synthesis	1795
A.H. Munhoz Jr., M.V.S. Martins, V. Ussui, K. Cruz, A.R. Zandonadi and L.F. de Miranda	
Study of Polyamide66/Bentonite Clay Hybrid Membranes Obtained by Solution	1802
K.M. Medeiros, S.V. de Oliveira, E.P. Araújo, E.M. Araújo and H.L. Lira	
Polyamide66/National Bentonite Clay Nanocomposites Membranes for Water-Oil Separation	1807
K.M. Medeiros, D.D. Souza, T.R. de Gouveia Silva, E.M. Araújo and H.L. Lira	
Modeling of the Height of Sediment in a Continuous Thickener	1812
J.R. Lira, F.d.O. Arouca, J.J.R. Damasceno and L.C. Oliveira-Lopes	
Experimental Analysis of Heat Transfer inside Packed Beds of Soybean Seeds	1818
G.F.M.V. Souza, R. Bétega, R.F. Miranda, O.S.H. Mendoza and M.A.S. Barrozo	
Experimental and CFD Simulation of a Bubble Column	1824
J.A. Ribeiro, A.S. Reis, P.S. Avendaño, C.H. Ataíde and M.A.S. Barrozo	
Isoconversional Kinetic Analysis of Pyrolysis of Sugarcane Bagasse	1830
K.G. dos Santos, R.A. Malagoni, T.S. Lira, V.V. Murata and M.A.S. Barrozo	
Experimental Determination of the Permeability of Non-Porous Planar Structures during Operation of Equipment in Own Industrial Unit	1836
S.M.S. Rocha and L.G.M. Vieira	
Study of Measurement Methods of Particle Velocity in a Spouted Bed	1842
D.A. Santos, G.C. Alves, M.A.S. Barrozo and C.R. Duarte	
Experimental Study of the Influence of Vortex Finder Geometry on Hydrocyclones Performance	1848
D.O. Silva, J.M.F. Façanha, L.G.M. Vieira and M.A.S. Barrozo	
Differential Evolution Algorithm and Response Surface Methodology Applied to Turning Process Optimization	1854
M.N. Sousa, F.S. Lobato and R.A. Malagoni	
Obtaining of Polymer Films from Nylon 6/Bentonite Clay Nanocomposites: Structural Characterization	1860
T.R. de Gouveia Silva, K.M. Medeiros, P.C.F. Menezes, E.M. Araújo and T.J.A. de Melo	
Solid - Phase Transformations of Anthracene in High Temperature Treatment	1866
L.L.P. Almeida, A.L.D. Skury, R.S. Guimarães and S.N. Monteiro	
Rheological Behavior of Xanthan Gum Solutions to Estimate the Settling Velocity of Particles during Stops Drilling Operation	1872
B.A. Moreira, L.G. Netto, R.E.A. de Faria, F.d.O. Arouca and J.J.R. Damasceno	
Evaluation of Constitutive Equation for Stress in Solids in Porous Media Composed of Bridging Agents Used in Drilling Fluids	1878
B.A. Moreira, F.C.A. Silva, L. dos Santos Sousa, F.d.O. Arouca and J.J.R. Damasceno	
Influence of Filtration Velocity on Cake Formation in Fibrous Filters	1884
D.M. Nunes, F.F.G. Alvarez, F.d.O. Arouca, S.M.S. Rocha and J.J.R. Damasceno	
Analysis of the Influence of Mini-Pipes Diameter in the Performance of a Non-Conventional Rotary Dryer	1890
B.C. Silvério, A.C.C. Soares, E.B. Arruda, C.R. Duarte and M.A.S. Barrozo	
Study of Biological Material Separation in Hydrocyclones	1896
I.C. Bicalho, J.L. Mognon, J. Shimoyama, C.H. Ataíde and C.R. Duarte	
Granulometric Characterization of Flotation Products	1902
R.C. Santana, M.A. Santos, T.C.M. Santos, T.A.A. Souza, C.H. Ataíde and M.A.S. Barrozo	
Rheological Study of Polyamide 6/Waste Styrene-Butadiene Rubber (SBR) Blends	1908
D.F. da Silva, D.C. Bezerra, L.T.A. Reul, E.M. Araújo, T.J.A. de Melo and V.N. Medeiros	
Synthesis, Characterization and Thermal Properties of an Europium (III) Nanocomplex	1913
H.C. Silva, C.R. da Silva Morais, S.A. Morais and B.F. Lira	

Characterization and Efficiency of ZnAl₂O₄ Spinel Synthesized by Combustion Reaction on the Esterification and Transesterification of Soybean Oil

A.C. Feitosa, E. Leal, D.C. Barbosa, S.M.P. Meneghetti, R.H.G.A. Kiminami and A.C.F. de Melo Costa

1919

Residual Stresses Measurements Using Strain Gages - Aluminum Wheels

F.C. Cione, J.L. Rossi, A.C. Souza, S. Delijaicov and M.A. Colosio

1925

Laser Modified Thin Layers in Piston Rings

F. de Oliveira, W. de Rossi and J.L. Rossi

1931