

Table of Contents

Preface

Chapter 1: Ceramic Materials

Hydrothermal Synthesis of Zeolite a Using Non-Calcined Diatomite	
A.F.M. de Carvalho, T.R. da Costa, G.P. de Figueiredo, J.A.B.L.R. Alves, R.C. Santiago, M.A. de Freitas Melo and D.M. de Araújo Melo	3
Gelatinization Technique Applied to the Processing of Porous Clay Bodies	
A.G. Storion, M.G.N. Campos, N.A. Mariano, W.A. Mariano and S.C. Maestrelli	8
Characterization of Kaolin Residues from the Jari Valley Reservations Provided by Cadam S/A Company	
A.C. Chaves, I.V. da Silva, A.L. da Silva, G.A. Neves and D.N.S. Oliveira	14
Phase Formation in Copper and Calcium Titanate Dielectric Ceramic Obtained by Polymeric Precursor Method	
G.V. Barbosa, S.V. Gonçalves, C.K.C. Kawahara, R.A.C. Amoresi, M.S. da Silva, J.M. Stropa, L.C.S. de Oliveira and A.A. Cavalheiro	20
Morphological and Structural Analyses in Carbonated Magnesium-Aluminum Hydrotalcites Co-Substituted with Iron III	
C.K.C. Kawahara, G.V. Barbosa, I.S. de Sá, S.V. Gonçalves, R.A.C. Amoresi, M.A. Zaghet, M.S. da Silva and A.A. Cavalheiro	26
The Effect of Iron (III) Co-Insertion in Magnesium-Aluminum Hydrotalcites Obtained by Precipitation Method at pH 11	
I.S. de Sá, C.K.C. Kawahara, G.V. Barbosa, E.F. de Souza, T.C.P.M. Ramos, R.A.C. Amoresi, M.S. da Silva and A.A. Cavalheiro	32
Proppants Development and the Shale Oil and Gas Market Perspective	
V.P.P. de Campos, G.A. Amaral Labat, D. Gouvea and G.F.B. Lenz e Silva	37
Analysis of the Effect of Cyclic Fatigue on the Flexural Strength of a Ceramoceramic System Used in Dental Prostheses	
C.F. de Carvalho, C.L. de Melo-Silva, T.C.F. de Melo-Silva, F.A. de Araújo and J.F.C. Lins	43
Characterization of Biomaterial and Tissue Response Analysis after Implantation	
E.d.S. Câmara-Pereira, A.E.H. Rolim, I.C. Barreto, L.M.C. Moraes, L. Campos, M.O.M.C. de Campos, A.d.A. Barbosa Junior, A.M. Rossi, S.R. de Albuquerque-Santos and F.P. Rosa	48
Comparative Analysis of the Influence of 10 and 5% Hydrofluoric Acid Etching on the Average Roughness of Lithium Disilicate Used in Dental Prostheses	
G.R. Baumgardt, A.C.M. Maffra, B.T.J.D. de Sousa, C.F. de Carvalho, C.L. de Melo-Silva, T.C.F. de Melo-Silva and J.F.C. Lins	53
ZrO₂ Pre-Sintered Blocks (3%mol-Y₂O₃) with Color Gradient for Dental Prostheses	
R.X. de Freitas, C. dos Santos, B.X. de Freitas and B.G. Simba	57
Synthesis and Characterization of Novel Crystalline Mesoporous Beta-Tricalcium Phosphate Nanoparticles	
F.R. de Oliveira Silva, W.K. Yoshito, I.C. Cosentino, A.H.A. Bressiani and N.B. de Lima	63
Study of the Zirconium and Silicon Homovalent Dopants Insertion on the Structure and Bandgap Energy of Titanium Dioxide Powders	
H.M. Garcia, E.F. de Carli, N.A. da Cruz, J.M. Stropa, L.R.V. Favarin, A. Muchulek Junior, L.C.S. de Oliveira and A.A. Cavalheiro	67
Structural and Thermal Studies of Titanium Dioxide Gel Modified with Anatase Isostructural Zircon Silicate	
E.F. de Carli, N.A. da Cruz, H.M. Garcia, J.M. Stropa, L.R.V. Favarin, A. Muchulek Junior, L.C.S. de Oliveira and A.A. Cavalheiro	73
Morphological, Structural, Electrical and Optical Properties of Copper-Doped Zinc Oxide Films Deposited by Spray Pyrolysis	
J.S.C. Licurgo and H.R. Paes Junior	79
Evaluation of the Structural, Photonic and Morphologic Effects Caused by Zinc Doping in the Titanium Dioxide Powder Samples Obtained by Sol-Gel Method	
J.F. de Queiroz, S.A.L. dos Santos, A.S. Herrero, M.A.U. Martines, A.A. Cavalheiro and L.C.S. de Oliveira	85

Estimate of the Nanoparticles Size of Magnetite Produced by Co-Precipitation Method M.C.d.C. Paresque, E.M. de Oliveira, M.d.A.S.C. Liuzzi, J.A. de Castro and M.F. de Campos	90
Analysis of Europium Doped Strontium Aluminate Synthesized by Route of PVA Evaporation S.E.S.d.J. Lima, E.F. dos Santos, M.E.B.R. Bello and P.N.M. dos Anjos	95
Structural Effects on Perovskite Phase Formation for PZT Powders Obtained by Polymeric Precursor Method M.S. da Silva, L.L. da Silva, E.F. de Souza, T.C.P.M. Ramos, I.S. de Sá, G.V. Barbosa, E. Longo and A.A. Cavalheiro	101
Photonic Properties of PZT Powders along the Crystallization Process of the Polymeric Precursor M.S. da Silva, E.F. de Souza, T.C.P.M. Ramos, G.V. Barbosa, E.K. Fischer, L.L. da Silva, M.S. Li, A.P. de Moura and A.A. Cavalheiro	107

Chapter 2: Building Materials

Brick Drying Simulations by Finite Volume Method R.S. Santos, D.P.A. Peña, D.D.S. Diniz, G.A. Costa, J.G.A. Queiroz and S.R.F. Neto	115
Study on the Influence of the Wastes from Cashew Industry on Environmentally Friendly Bricks F.P. de Araújo, J.A. Osajima, J.S.N. de Souza and M.B. Furtini	120
Iron Ore Tailing as Addition to Partial Replacement of Portland Cement L.F. de Magalhães, I. de Souza Morais, L.F. dos Santos Lara, D.S. de Resende, R.M.R.O. Menezes, M.T.P. Aguilar and A.C. da Silva Bezerra	125
Sericitic Phyllite as Addition in Portland Cement I. de Souza Morais, L.F. de Magalhães, L.F. dos Santos Lara, E.C. Siqueira Corrêa, R.M.R.O. Menezes, M.T.P. de Aguilar and A.C. da Silva Bezerra	131
Use of Waste from Construction and Demolition in the Manufacture of Soil-Cement Bricks: A Sustainable Alternative L.R. de Macêdo Reis, I.R.O. do Nascimento Filho, I.G.R.V. Reis, P. de Abreu Vieira, L.L. Brasileiro and J.M.E. de Matos	137
Phenomena of Capillarity and Drying in Gypsum Blocks: Development of Experimental Apparatus for the Characterization of Representative Specimens E.P. de Campos and A. de Vasconcelos Ferraz	142
Preparation and Compressive Strength Evaluation of Concrete Containing Oil Sludge as Additive A.S. Araujo, A.C.F. Coriolano, R.A.F. Bandeira and R.C.O.B. Delgado	148
In Situ Hydration of Sulfoaluminate Cement Mixtures Monitored by Synchrotron X-Ray Diffraction C.M. Rossetto, R.U. Ichikawa, L.G. Martinez, G.L. Carezzato, A.M.G. Carvalho and X. Turrillas	153
Influence of Glass Residue Addition on the Properties of Adhesive Mortar D.P. dos Santos, A.R.G. de Azevedo, J. Alexandre, D.P. Dias, G. de Castro Xavier, F.d.C.G. Filho and S.N. Monteiro	158
Effect of the Addition of the Waste Generated from the Feldspar Mining on the Obtainment of Ceramic Brick F.d.L. Sartor, L.P. Spricigo, D.F. Niero, A.M. Bernardin, O.R.K. Montedo and E. Angioletto	164
Physical Properties, Mechanical Strength and Microstructure of Fired Clay Brick Waste and Metakaolin Geopolymer Mortars S. Schwaab, O. Ueno, D. Ganasini, M.V. Folgueras and S.L. Correia	170

Chapter 3: Polymers and Composites

Study of the Effect of Compatibility Agents in the Incorporation of Rice Hull Ash in Polypropylene Compounds: Mechanical Properties M.N. Oliveira, N.E. de Cássia Dutra, N.F. Codelo and S.N. Haruo	179
Hybrids Obtained from Monoglyceride of Castor Oil with Hydroxyapatite for Applications in Bioinduction of Bone Tissue: Synthesis and Characterization M.T. de Albuquerque Mendes, F.X. Nobre and J.M.E. de Matos	184

Physical Properties of PHB/VMF2 Nanocomposite Microcapsules in Water	190
J. de Carvalho Arjona, F.R.V. Díaz, H. Wiebeck, W.S. Hui and M.d.G. da Silva-Valenzuela	
Study of Double Walled Corrugated Cardboard as an Alternative Material for Eco-Friendly Designed Furniture	195
R.B.C. Sales, A.G. Franco, N.D.S. Mohallem and M.T. Paulino Aguilar	
Comparative Analysis of the Tensile Properties of Polyester and Epoxy Composites Reinforced with Hemp Fibers	201
L.A. Rohen, A.C.C. Neves, J.L. dos Santos, L.F.C. Nascimento, S.N. Monteiro, F.S. de Assis, N.T. Simonassi and L.C. da Silva	
Absorption Evaluation of Water in Panels from Elephant Grass with <i>Eucalyptus</i> sp. Leaves	207
J.S.N. de Souza, J.A. Osajima, M.B. Furtini, E.C. da Silva Filho, Y.K.L. Abreu, M.X. Ribeiro, F.P. de Araújo, J.S. Santana and D.F. Melo	
Antimicrobial Activity of PET-Silver Nanocomposite Filaments	212
M.A. Guerra, J.P. Swerts, M.A. Funcia and M.G.N. Campos	
Study of Hybrid Membranes Prepared with the Addition of Calcium Chloride	218
K.M. Medeiros, D.F. Lima, C.A.P. Lima, E.M. Araújo and H.L. Lira	
Characterization of PET-Silver Nanocomposite Filaments	224
M.A. Guerra, J.P. Swerts, M.A. Funcia, N.A. Mariano and M.G.N. Campos	
Addition of Zinc Oxide Nanoparticles in Biodegradable Polymer and Evaluation of its Antimicrobial Activity	230
A.P. Capelezzo, L.C. Mohr, J.S. Godoy, A.S. Bellei, L.L. Silva, M.A.P.M. Martins, M.A. Fiori and J.M.M. de Mello	
Generation of Latex Films on Glassy Substrates by Evaporation Induced Self-Assembly (EISA) Process	236
W.C. Rodrigues, A.E. dos Santos Silva, P.R. Lima, J. dos Santos Sousa, A.J.D. de Freitas, J.D. de Freitas and D. de Albuquerque Barros Filho	
Factorial Experimental Planning Applied for Evaluated Effect of Matrix Temperature and Screw Rotation Speed of Extrusion in Mechanical Properties and Dimensional Changes in PVC Pipes	241
J. Fiori Júnior, R. Piletti, J. Ilha, M. Pierini, H.G. Riella and M.A. Fiori	
Analysis of the Influence of Injection Process Parameters of Polymer Blends from Printers	248
E.L. Schneider, J.V.R.V. Gonçalves, A.P. Adam, D.M. de Quevedo, L.C. Robinson, J.C.H. Otterbach and P.M. de Aquim	
Degradation of Colored Polystyrene Films	254
F.P. de Araújo, J.A. Osajima, M.R.S. de Araujo, E.C. da Silva Filho and J.S.N. de Souza	
Biocomposite of Ultra-High Molecular Weight Polyethylene and Hydroxyapatite with Antibacterial Properties by the Incorporation of Zinc Oxide Nanoparticles	258
R. Galli, M. Soares, L.P. Domingos, E.B. Batiston, L.L. Silva, J.M.M. de Mello, G.W. Duarte, H.G. Riella and M.A. Fiori	
PA6/Sodium Clay Membrane for Application in Petroleum Sector	264
M.M.C.C. Mota, E.M. Araújo, L.A.M. Damiao, K.M. Medeiros and C.A.P. de Lima	
Effect of Drying Temperature in Biopolymeric Films of Cassava Starch and its Effect on Wettability, Water Vapor Barrier and Mechanical Properties	270
V.R.L. Oliveira, M.K.S. Monteiro, F.K.G. Santos, R.H.L. Leite and E.M.M. Aroucha	
Influence of the Geometric Characteristics of the Mini-Implants on Mechanical Properties Using Artificial Bone Similar to Anterior, Middle and Posterior Regions of the Jaws	276
E. Pesqueira, C.S. Muci and J.L. Rossi	
Active Packaging Using Orange Oil Incorporated into PBAT Biodegradable Films	283
M.F. de Andrade, G. da Silva Gois, S.M. da Silva Garcia, I.D.L. da Silva, V.F. Caetano, Y.M.B. de Almeida, T.J.A. de Melo and G.M. Vinhas	

Chapter 4: Steel, Alloys, Metallurgical Technologies

Micromechanical Modeling of Dual-Phase DP600 Steel Sheet Plastic Behavior Based on a Representative Volume Element Defined from the Real Microstructure	293
G.C. Barbosa, L.P. Moreira, L.B. da Silveira, F.R.F. da Silva and M.C. Cardoso	
Modeling and Simulation of Nucleation and Growth Transformations with Nucleation on Interfaces of Kelvin Polihedra Network	299
G.D. da Fonseca, A.L.M. Alves, M.F.B. da Costa, M.S. Lyrio, W.L.S. Assis and P.R. Rios	

Evolution of Individual Grains in 3d Microstructure Generated by Computational Simulation of Transformations Involving Two Phases	
A.L.M. Alves, G.D. da Fonseca, M.F.B. da Costa, W.L. da Silva Assis and P.R. Rios	305
Micromechanical Modeling of DP600 and DP800 Steels Plastic Behavior Based on the Mori-Tanaka Homogenization Method	
G.C. Barbosa, L.P. Moreira, L.B. da Silveira and M.C. Cardoso	311
Effects of Heat Input Conditions on the Local Thermophysical Properties of Super Duplex Stainless Steels	
J.A. de Castro, G.S. da Fonseca, D.S.S. Almeida, L.C.R. Lopes, C.R. Xavier and E.M. de Oliveira	317
Study of Wear on Nicraly Coating Sprayed by HVOF on 316 Steel and Laser CO₂ Remelting Process	
S.A. Silva, A.C.C. Oliveira, G.R. Pita, M.F.S. Ferreira and G. de Vasconcelos	322
Effect of Niobium and Heat Treatment on the Microstructure and Mechanical Properties of SAE 8620 Steel	
J.C.d.M. Neto, M. Duarte Vieira, A.E.D. Silva Guedes, J.E. Neto, B.M. Freitas, G.S. Moreira, L.C. Cruz, W.S. Dias, N. Girard, E.L.G. Santiago, N.R. do Nascimento and M.D. dos Santos	327
Effect of Controlled Cooling after Hot Rolling on the Mechanical Properties of a Low Carbon Niobium Microalloyed Steel Wire Rod	
F.F. David, S.F. David, R.C. Rocha and R.A.S. Ferreira	333
Effects of Different Annealing Times on Microstructure and Tensile Properties of Joints Welded 5052 Aluminum Alloy in Marine Industry	
J.C.d.M. Neto, J.B. de Oliveira, M.R. Ribeiro, A.E.D. Silva Guedes, R. Almeida Rodrigues, R.N.A. Silva, N.R. do Nascimento, J.E. Neto, E.R. Barreda, J.C. Martins and B.M. Freitas	339
Effect of Cooling Rate on the Transformation Temperatures of Ni₅₀Ti₃₆Hf₁₄ Melt-Spun Ribbons	
R.L. Soares and W.B. Castro	345
Limit Strains Analysis of Advanced High Strength Steels Sheets Based on Surface Roughness Measurements	
L.B. da Silveira, L.P. Moreira, L. da Silva, R.O. Santos, F.R.F. da Silva, M.C. Cardoso and M.C. dos Santos Freitas	349
Determination of Mechanical Properties for Microhardness Mapping in a 5052 Aluminum Alloy Welded by Mig Process	
J.C.d.M. Neto, J.V. Silva, G. dos Santos Moreira, J.E. Neto, F. Silveira, B.M. Freitas, A.E.D. Silva Guedes, R. Almeida Rodrigues, S.P.R. Kimura, N.R. do Nascimento, E.R. Barreda and R.N.A. Silva	356
Evaluation of the Bactericidal Properties of the Biomimetic Coating of Ha Doped with AgNO₃	
L.L. de Sousa, D.G. Prado, M.F.C. Coelho, V.P. Ricci, G.V. Ferreira, E.C. da S. Rigo, M.C. dos Santos Fernandes and N.A. Mariano	362
Electrochemical Behavior of Hot Treated Ti-12Mo-8Nb Alloy	
A.R.V. Nunes, S.G. Borborema, L.S. Araújo, C.A. Nunes and L.H. de Almeida	368
Effect of Solution Annealing Time on the Microstructure and Corrosion Resistance of Duplex Stainless Steel	
S.C. de Rezende, M.E.R. Cronemberger, R. Silva, C.A.D. Rovere, S.E. Kuri, L.L. de Sousa and N.A. Mariano	374
Influence of Strain Amplitude on the Functional Properties and Aging at Room Temperature of a Superalastic NiTi Alloy	
M.C. Mendes Rodrigues, G.C. Soares and L. de Arruda Santos	380
Analysis of Mechanical and Micro-Structural Properties of Shaft Tips Manufactured in ABNT 1045 Steel Applied in Transportation Ore Fractured Early	
N.M. Magalhães, L.A.J. da Silva, O.G.A. da Silva, S.M. Brandão, R. Wobeto, A.A. Monteiro and J.G. Silva	386
Observations on Dynamic Strain Aging Manifestation in Inconel 718 Superalloy	
M.C. Rezende, L.S. Araújo, S.G. Borborema, J. Dille and L.H. de Almeida	390
Study of the Abrasion Resistance of Fe-Cu-Nb and NEXT 100® Metallic Matrices for the Manufacture of Diamond Tools	
H. Oliveira, A.C. Batista, G.J. Perpétuo, T.E. Leal, A.C.F. Reis, P.S. Assis and M. Filgueira	395
Relationship between Electrical Conductivity and the Stage of the Heat Treatments of Aging and Overaging of the Aluminum Alloy AA2024	
P. Oliveira, M.L.N. Melo, R.S.M. Silva and D.O. Caixeta	400

Study of the Correlation between Microstructure and Corrosion Resistance of the AZ91D Magnesium Alloy	405
R.A. Antunes, M.C.L. de Oliveira, L.C. de Castro Ferraz, L. dos Reis Gonçales and O.V. Correa	
Comparative Analysis of Wear Behavior of Al 7075 Alloy, AISI 1020 and AISI 1045 Carbon Steels	411
E. Santos, J. Alencar and K. Cruz	
Evaluation of Spheroidization on Erosive Wear of ASTM A106 Steel Used in Heat Exchangers	416
M.R. da Rocha, A.B.C. Arnt, E. Angioletto, H.A. Virgínia, G.B. Ugioni and A. Teixeira	
Effect of Passivation Treatment on Adhesion and Protective Properties of Steel Coated with Polymeric Film	422
E. Žumelzu, H.G. de Melo, A.R. di Sarli and C.R. Tomachuk	
Influence of GPTMS Precursor Concentration as Pretreatment of Galvanized Steel	428
H.C. de Oliveira, O. de Almeida Neuwald, L.V.R. Beltrami, G.J.L. Gerhardt and S.R. Kunst	
Behavior of Polypyrrole Film Chemically Polymerized with Lauric Acid on Copper Surface	434
B.R. Ferreira, A.S. Liu and L.Y. Cho	
Influence of Alloying Elements Zr, Nb and Mo on the Microstructure and Magnetic Properties of Sintered Pr-Fe-Co-B Based Permanent Magnets	440
M.R.M. da Silva, R.G.T. Fim, S.C. Silva, J.C.S. Casini, P.A.P. Wendhausen and H. Takiishi	
Influence of Milling Time on Magnetic Properties and Microstructure of Sintered Nd-Fe-B Based Permanent Magnets	445
R.G.T. Fim, M.R.M. Silva, S.C. Silva, J.C.S. Casini, P.A.P. Wendhausen and H. Takiishi	
Comparison between Magnetic Anisotropy Energy and a Parameter to the Assessment of Magnetic Property of Electrical Steel	449
R.A.C. Felix, R.L.O. da Rosa and L.P. Brandão	
Recycling Chips of Stainless Steel by High Energy Ball Milling	454
C. de Sales Pereira Mendonça, V.A. dos Santos Ribeiro, M.M. Junqueira, D. Sachs, L.A. Oliveira, M.d.L.N.M. Melo and G. Silva	
Study of the Thermal Diffusivity Variation in Thin Duplex Steel Plates Welded by GTAW Process	460
E.G. BETINI, M.P. Gomes, C.S. Mucsi, T. de Souza Luz, M.T.D. Orlando and J.L. Rossi	
Influence of Thickness on Magnetic and Microstructural Properties in Electrical Steels Semi-Processed of Low Efficiency	466
M.A. Trindade, M.F. de Campos, F.J.G. Landgraf, N.B. de Lima and A. Almeida	
Diffusion Analyses Using GDOES Technique of the 22MnB5 Press Hardened Steel with Al-Si and Zn-Ni Coatings	472
C.P. Couto, R. Politano, M.P. Gomes, M.A. Colosio and J.L. Rossi	
Ellipsometric Characterization of AZ31 Magnesium Alloy	478
D.S. da Silva Almeida, L. da Silva, M.T.D. Garcia, J.A. de Castro and L.P. Moreira	
Effect of Copper and Magnesium on the Microstructure of Centrifugally Cast Al-19%Si Alloys	484
C. Contatori, A.A. Couto, J. Vatavuk, A.A.C. Borges, N.B. de Lima and R. Baldan	
Corrosion Characterization of AISI 304 Stainless Steel Filter	489
L.P. Barbosa, O.V. Correa, N.K. Filho and I. Costa	
Study on the Viability of the Recycling by Electric Arc Melting of Zirconium Alloys Scraps Aiming the Scalability of the Process	495
C.S. Mucsi, L.A.M. dos Reis, M.P. Gomes, L.A.T. Pereira and J.L. Rossi	
Microstructure Optimization in δ-TRIP Steels with Al and Nb	501
E. de Souza Baêta Júnior, R.A. Botelho, L.S. Araújo, L.P. Brandão and S.N. Monteiro	
Evaluation of the Residual Stress and Microstructure of Extruded and Shot Peened Aluminum Alloy 6082	507
A.A.C. Borges, M.C. de Araújo, A.A. Couto, N.B. de Lima and C. Contatori	
Microstructural Evaluation of a 5052 H34 Aluminum Alloy Used in Multilayered Armor	513
A.C. Pereira, F. de Oliveira Braga, S.N. Monteiro, T.M. de Azevedo and W.S. Braga	
Development of a Microtorquemeter for the Evaluation of the Implant Abutment Interface Behavior	520
L.C. Aranha, C.S. Mucsi, F.C. Ceoni, M.C. de Alencar and J.L. Rossi	

Mechanical Properties of NiTi Shape Memory Alloys Welded Joints: A Comparative Study between the GTAW, PAW and LBW Processes

R.H.F. de Melo, M.J.C. de Oliveira, P.Í.V. de Oliveira, M.S.F. de Lima, T.M. Maciel and C.J. de Araújo

526

Chapter 5: Technologies of Environmental Engineering

Dechroming: An Alternative Treatment for Leather Shavings, to Obtain a Biocompatible Collagen without Environmental Impacts

N.G. Balarim, D.G.S.M. Cavalcante, A.S. Gomes, F.C. Cabrera and A.E. Job

535

Characterization of Galvanic Sludges Waste Derived of the Metal Plating Industry from Cariri Region, Northeastern of Brazil

C.L.M. de Oliveira, F.J. de Paula Filho, J.V.B. Moura, D.M.G. Freitas and M.O. Santiago

541

Evaluation of Microstructural Phenomena in the Utilization of Porcelain Tile's Shards to Obtain New Ceramic Materials

E.M. Gripa, I.L.M. Gonçalves and V. Almeida

546

Photo-Oxidation of Tetracycline Adsorbed in Clayand in Aqueous Suspension

J.A. Osajima, E.C. da Silva Filho, N.H. Belhouchat, E.C. Gil and C.A.V. Iborra

552

Kinetics Modelling of the Adsorption Process of Zinc Ions by Glass Microparticles

E. Mendes, E. Angioletto, E. Mendes, R. Ternus, K.R. Betiatto, R. Heloisa, K. Testa, R. Piletti, H.G. Riella and M.A. Fiori

556

Use of Retorted Shale as Sulfur Adsorbent

R.L.B. de Araújo Medeiros, M.d.F.D. e Silva, R.C. Santiago, G.P. de Figueiredo, H.P. de Macedo, M.A. de Freitas Melo and D.M. de Araújo Melo

562

The Use of Palygorskite as a Catalytic Support for TiO₂ on the Degradation of Herbicide: A Review

L.I.F. Pinto, A. de Sousa Sá, A.Í.S. Morais, F.P. de Araújo, E.C. da Silva Filho and J.A. Osajima

568

Development of Asymmetric Ceramic Membranes Coated with Residue of Granite for Use in Wastewater Treatment

M.A.R. Bonifácio, H.L. Lira, M. Inocêncio, M.C. da Silva, R.F.V. Farias and K.B. França

572

Characterization of Coal Fly Ash for Use in Synthesis of Zeolites

A.C. Cavalcanti Gomes, A. de Vasconcelos Ferraz and L.P.G. da Rocha

578

Residue Characterization from Polishing Granite Submitted to the Hydrocycloning Process

A.L. Araújo Caetano, M.d.C. Barbosa Neto, V.C. Marques, D.A. de Macedo, H.S. Ferreira and R.P.S. Dutra

584

Assessment of the Photocatalytic Efficiency of TiO₂ in the Presence of Sulphate

L.I.F. Pinto, A. de Sousa Sá, V.B. dos Santos, E.C.S. Filho and J.A. Osajima

589

Chapter 6: Materials in Energy and Measurements

Electrochemical Characteristics and Microstructures of Activated Carbon Powder Supercapacitors for Energy Storage

T.C. Gonsalves, F.M. Silva, L.S. Vieira, J.C.S. Casini and R.N. Faria

597

Horseradish Peroxidase Immobilized on Polyaniline onto Monocrystalline Silicon for Glyphosate Herbicide Detection

R.L. Roman, E.M. Turmena, L. Nagi, L.L. Silva, S.C. Fernandes, J. Dal Magro, J.M.M. Mello and M.A. Fiori

603

The Production of Reduced Graphene Oxide by a Low-Cost Vacuum System for Supercapacitor Applications

Q. Cardoso, F.M. Silva, L.S. Vieira, J.C.S. Casini, S.K. Sakata and R.N. Faria

609

Chemical and Physical Variations on Cotton Wires

C.S. Souza and J.U. Mendes

613

Selective Copper Oxide Coating on Aluminum Panels for Solar Heating Absorption

S.N. Monteiro, F. de Oliveira Braga, F.J. Tommasini, A.C. Pereira, A.B. da Silva Figueiredo and F.S. da Luz

619

Synthesis and Characterization by Ellipsometry of Cationic Membranes for Fuel Cells

B.L.S. Cadinelli, F.C. do Nascimento, T.A.A. Faria, L.M. Freire, L. da Silva, J.A. de Castro and F.J.B. Brum

625

Processing and Characterization of ZrO₂-TiO₂ Porous Films by Dip Coating for Application as Environmental Sensors

S.A. Silva, S.L. Mineiro, R.M. Oliveira and M.d.C.A. Nono

631

Effect of Hydrogen Decrepitation Pressure on the Particle Size of Rare Earth Based Alloys for Ni-Mh Battery Production

E.P. Soares, J.C.S. Casini, L.S. Vieira, F.M. Silva, R.N. Faria and H. Takiishi

637