

Frontiers in Materials and Minerals Engineering

Selected, peer reviewed papers from the 5th Regional Conference on Materials Engineering and the 5th Regional Conference on Natural Resources and Materials 2013 (RCM5 & RCNRM5 2013), January 22-23, 2013, Malaysia

von

Radzali Othman, Norlia Baharun, Swee-Yong Pung

1. Auflage

Frontiers in Materials and Minerals Engineering – Othman / Baharun / Pung

schnell und portofrei erhältlich bei beck-shop.de DIE FACHBUCHHANDLUNG

Thematische Gliederung:

Werkstoffkunde, Mechanische Technologie

Trans Tech Publications 2014

Verlag C.H. Beck im Internet:

www.beck.de

ISBN 978 3 03785 905 6

Table of Contents

Preface, Committees and Sponsors

Chapter 1: Materials Engineering

Ageing Characteristics of Equal Channel Angular Pressed Al-Mg-Si Alloy S.V. Yee, Z. Hussain, A.S. Anasyida, M. Syukron and I.P. Almanar	3
Bone Marrow Cell Response on Carbonate Apatite/PCL-Coated α-Tricalcium Phosphate Foam T.B. Le, X.L. Shi, I. Kunio and R. Othman	7
Characterization Copper (II) Chloride Modified Montmorillonite filled PLA Nanocomposites A.H. Abdullah, K. Yusoh, M.F.M. Yatim, S.A.N. Effendi and W.S.N.W. Kamaruzaman	13
Comparison of Friction Stir and Tungsten Inert Gas Weldments of AA6061-T6 M.R. Shaari, Z. Hussain, I.P. Almanar and N. Van Thuong	19
Comparison of Mechanical Properties and Curing Characteristics of Natural Rubber Composites with Different Coupling Agents M. Lay, A.A. Rashid, N. Othman, Y. Tezuka and C. Pen	24
Comparison on the Properties of Glass Fiber/MWCNT/Epoxy and Carbon Fiber/MWCNT/Epoxy Composites W.A.D. Wan Dalina, M. Mariatti, R. Ramlee, Z.A.M. Ishak and A.R. Mohamed	32
Decolourization of Simulated Dye Wastewater Containing Reactive Blue 19 (RB19) by the Electro-Fenton Reaction in the Presence of Metal Oxide-Coated Electrodes M.T. Shwe, M.M. Dimaculangan and M.D.G. De Luna	40
Effect of Cleaning Agent on Tensile and Swelling Properties of Natural Rubber Latex Film M. Md Sidek, A.R. Azura and B. Azahari	46
Effect of Solid Concentration on Properties of Porous Alumina D. Chhor, S.R. Kasim, A.F. Mohd Noor, M. Nareth and E. Sakai	52
Effect of the Sponge Used as the Template for the Production of Porous Cordierite M. Hasmaliza, M. Siti Naqiah and I. Norfadhilah	56
Effect of Synthesis Parameters on Size of the Biodegradable Poly (L-Lactide) (PLLA) Microspheres A.A. Hawari, C.Y. Tham and Z.A.A. Hamid	60
Effect of Zinc Nitrate Concentration on Formation of AuNPs by Sacrificial Templated Growth Hydrothermal Approach and its Properties in Organic Memory Device S.A. Ng, L.P. Goh, K.A. Razak, K.Y. Cheong, P.C. Ooi and K.C. Aw	67
Effects of SiO₂ Nanoparticles on Dielectric Characteristic of Aloe Vera Paste L.Q. Khor and K.Y. Cheong	74
Electrical Properties of LLDPE/SR with Nano-Silica and Nanoboron Nitride I.N. Hidayah, M. Mariatti, H. Ismail and M. Kamarol	80
Granite Waste as a Raw Material in Ceramic Body Formulations P. Nordala, M. Hasmaliza, T. Hirajima and R. Othman	88
Improvement of Compressive Properties of Porous HA Scaffold by Introducing PCL Secondary Phase P. Yos and M. Todo	96
Iron-Free Hydroxyapatite Powder from Synthetic Ca(OH)₂ and Commercialized Ca(OH)₂ P.T. Kien, D.Q. Minh and P.T.L. Thanh	103
Microstructural Study of Hypereutectic Al-15%Si Containing Ce A.S. Anasyida, Z. Hussain, R. Md Nasir and S.L. Joy-Yii	111
Microstructural Study of Sn-3.0Ag0.5Cu Alloy on Cu/NiP-Coated Substrate by Addition of Fe, Sb and Ce A.S. Anasyida, M.S. Nurulakmal, M. Yusoff and C.L. Teh	116
Organic and Inorganic Acid Activation of Activated Carbon Fiber from Palm Oil Empty Fruit Bunch W.K. Cheah, R. Othman and F.Y. Yeoh	122

Porous Ceramic Bodies Using Banana Stem Waste as a Pore-Forming Agent K. Sengphet, T. Sato, M.N. Ahmad Fauzi and R. Othman	131
Porous Cordierite Synthesized Using Corn Starch M. Hasmaliza, Y.M. Lim and I. Norfadhilah	137
Properties of Lanthanum-Doped Bismuth Sodium Titanate ($\text{Bi}_{0.5}\text{Na}_{0.5}\text{TiO}_3$) Prepared by Soft Combustion Technique M.L. Cheah, K.A. Razak and C.Y. Ng	141
Second-Order Nonlinear Optical Response of Metal Nanostructures K. Locharoenrat	147
Structural and Optical Properties of Fe-Doped ZnO Nanorods S.N.Q.A. Abd Aziz, S.Y. Pung, Z. Lockman and N.A. Hamzah	151
Synthesis <i>In Situ</i> Composite TiAl-Based with Particulate Al_2O_3 Reinforcement by Powder Metallurgy Route T.D. Huy, N.H. Hai and K.N. Ishihara	159
Synthesis of Porous Silica via Styrene Natural Rubber Template: The Effect of Calcination Y. Siti Nurfatihah, A.B. Ben Alwi, A.R. Azura and A. Zulkifli	164
Temperature Dependent Current-Voltage Characteristics of n-Type Nanocrystalline-FeSi_2/p-Type Si Heterojunctions Fabricated by Pulsed Laser Deposition N. Promros, R. Iwasaki, S. Funasaki, K. Yamashita, C. Li and T. Yoshitake	171
The Effect of FeSO_4 Containing Solution on Microbiological Influenced Corrosion by <i>Desulfovibrio Baculatus</i> Bacteria on API 5L X65 Steel B. Widyanto and A. Tambun	177
The Effect of Pre-Vulcanization Temperature on Mechanical and Rheological Properties of Starch Filled Natural Rubber Latex Compounds S.R. Yahya, F.N. Hamdan, A.A. Rashid and B. Azahari	184
The Effect of Surfactant Extraction Method on Pore Characteristics of Mesoporous Carbonated Hydroxyapatite M. Nur Farahiyah, R. Othman and F.Y. Yeoh	190
The Effect of Wollastonite on Curing Characteristics, Tensile and Morphology of Natural Rubber Compounds H.T.B. Diep, H. Ismail, A.R. Azura, N. Van Tu and T. Takeichi	199
Use of Rice Straw Ash in Enhancing the Properties of Soda-Lime-Silica Glass-Ceramics R. Othman and J. Farah	205
Viscosity Effect on the Reinforcement Properties of Silica Filled ENR Rubber Compound M.K. Mazlina, Z.Z. Teku and K.C.A. Ahmad	212

Chapter 2: Mineral Resources Engineering

An Assessment of the Carbothermal Reduction of Malaysian Ilmenite by Statistical Design H.S. Saidin, S.A.S. Salim, N. Baharun, S.A. Rezan and H. Hashim	221
Assessment of EAF Steel Slag Solubility by Statistical Design K.B. Lateef, S.A. Rezan and M.S. Nurulakmal	228
Case Study of Alluvial Gold Mining at Pulai Mining in Gua Musang, Kelantan, Malaysia E.K. Eam, S.F.S. Hashim, M.H. Mohd Hashim and M.T. Mohd Yusof	236
Characterization and Gold Assaying Methods in the Assessment of Low Grade Gold Ore from Malaysia N. Baharun and P.L. Ong	243
Comparison of Silica Sand Properties from Kandal Province, Cambodia and Tapah, Perak, Malaysia and Characterization of Soda Lime Silicate Glass Produced From Cambodian Silica Sand E. Sereiratana, K.A. Bharum, S.A. Rezan, R. Othman, F. Takahashi and P. Boné	248
Glass Sand Processing Techniques in the Rayong Area, Thailand S. Saisinchai	254
Microstructural Study of Reduced Malaysian Ilmenite by Carbothermal Reduction and Nitridation in Nitrogen Atmosphere A.S.S. Sharifah, H.S. Saidin, N. Baharun, S.A. Rezan and H. Hashim	265
Modelling and Simulation of Air Classification in Cement Manufacturing K.E.H. Ku Ishak and S.F. Saiyid Hashim	272

The Mineralogy of the Copper – Gold Ore Deposits at the Phu Kham, Mine, Laos
V. Soysouvanh, K.S. Ariffin, K. Watanabe and N. Visane

283