

Table of Contents

Preface

Chapter 1: Using of Geopolymers and Pozzolanic Materials

An Application of Rice Husk Ash (RHA) and Calcium Carbonate (CaCO_3) as Material for Self-Healing Cement	
J.J. Ekaputri, F.F. Alrizal, I. Husein, Triwulan and M.M. Al Bakri Abdullah	3
Treated Oil Palm Ash as Precursor in the Zeolite Synthesis	
F.C. Pa, A. Chik and M.F. Bari	13
Strength, Density and Water Absorption of Palm Oil Boiler Ash (POBA) Geopolymer Brick/IBS Brick	
Y. Zarina, K. Husin, M.M. Al Bakri Abdullah, K.N. Ismail and R. Abd Razak	21
Performances of Artificial Lightweight Geopolymer Aggregate (ALGA) in OPC Concrete	
R. Abd Razak, A.M.M. Al Bakri, K. Hussin, K.N. Ismail, D. Hardjito and Y. Zarina	29
Effect of Silica Fume and Glass Powder on High-Strength Paste	
H. Limantono, J.J. Ekaputri and T.E. Susanto	37
Adhesiveness of Kaolin Based Coating Material on Lumber Wood	
S. Ramasamy, K. Hussin, A.M.M. Al Bakri, C.M.R. Ghazali, A.V. Sandu, M. Binhussain and N.F. Shahedan	47
Effect of Mixing Technique on Epoxy Resin Nanocomposites Filled Fly Ash Based Geopolymer to Compressive Properties	
Y. Mat Daud, K. Hussin, C.M.R. Ghazali, A.F. Osman, A.M.M. Al Bakri and M. bin Hussain	55
Flexural and Crack Analysis of Oil Palm Clinker in Lightweight Reinforced Concrete Beams	
R. Kamaruddin, M.M.A.B. Abdullah and M.F. Mohd Tahir	65
Experimental Test and Non-Linear Finite Element Modeling Prediction on Profiled Steel Sheeting Dry Board (PSSDB) with Geopolymer Concrete Infill	
M.I. Jaffar, W.H. Wan Badaruzzaman, A.M.M. Al Bakri and S. Baharom	75
Effect of PVA Fiber in Increasing Mechanical Strength on Paste Containing Glass Powder	
J.J. Ekaputri, H. Limantono, Triwulan, T.E. Susanto Susanto and M.M. Al Bakri Abdullah	83
The Usage of Glass Waste as Cement Replacement	
A.A. Kadir, M.R. Ismail, A.M.M. Al Bakri, N.A. Sarani and M.I.H. Hassan	95

Chapter 2: Polymers and Composites

Optimization of Holding Time on Microwave Irradiation of the Composite Iron-Chromium Reinforced with Alumina Particle	
W. Rahman, J.B. Shamsul and M. Mohd Noor	107
Mechanical and Microstructure Characterization of Aluminium-Copper (Al-Cu) Reinforced with <i>In Situ</i> Titanium Diboride (TiB_2)	
R. Rosmamuhamadani, S. Sulaiman, A.H. Mohamed Ariff, M.I.S. Ismail and M. Talari	117
Thermal and Mechanical Characterizations of Nanoclay/Palm Oil Polyol Based Polyurethane Composites	
S.A. Zubir, S.A. Ernie and S. Ahmad	127
The Effects on Cure Characteristics, Physico-Mechanical Properties and Morphology of Bamboo Activated Carbon Filled Styrene Butadiene Rubber (SBR) Vulcanizates	
N.R. Munirah, N.Z. Noriman, M.S. Zakaria, H. Kamaruddin, M.H. Fatin, S.S. Ting, A.M. Mustafa Al Bakri and H. Rosniza	131
Collapsed Mode and Specific Energy Absorption of Glass Filled Polypropylene (GPE) and Glass Filled Polyethylene (GPP) Composite Pipes under Quasi-Static Axial Loading	
H.H. Ya and H. El-Sobky	141
Properties of Natural Rubber/Styrene Butadiene Rubber/Recycled Nitrile Glove (NR/SBR/rNBRg) Blends: The Effects of Recycled Nitrile Glove (rNBRg) Particle Sizes	
N.Z. Nik Yahya, N.N. Zulkepli, H. Ismail, S.S. Ting, M.M.A.B. Abdullah, H. Kamarudin and R. Hamzah	151

Synthesis of 60 (wt.%)SiO₂-40 (wt.%)CaO Sol-Gel Derived Glass-Ceramic and <i>In Vitro</i> Bioactivity Assessment in SBF Solution S.A. Syed Nuzul Fadzli, S. Roslinda and F. Zainuddin	161
Characterization of Linear Low Density Polyethylene/Rambutan Peels Flour Blends: Effect of Loading Content A.A. Nadhirah, S.S. Ting, N.Z. Noriman, A.M.M. Al Bakri, M.F. OMAR and H. Kamarudin	171

Chapter 3: Green Technologies in Chemical Engineering

Precipitated Silica Derived from Palm Oil Mill Fly Ash: Kinetics and Characterization P.S. Utama, R. Yamsaengsung and C. Sangwichien	183
Screening of Total Phenolic Content of Antioxidant Thin Film from Pomelo (<i>Citrus grandis</i>) Peel R. Abdullah, N.S. Aina Arshad, Z. Zakaria, S.S. Ting and L.B. Beng	193
Pyrolysis of Rice Straw by Using Microwave Irradiation with Quartz Glass Reactor K. Azduwin, Z. Zarina, M.J.M. Ridzuan and A.A. Ahmad	203
The Utilization of Coconut Fibre into Fired Clay Brick A.A. Kadir, S.N. Mohd Zulkifly, A.M.M. Al Bakri and N.A. Sarani	213