

Table of Contents

Preface and Committee

Chapter 1: Materials and Technologies for Energy Production

Effects of Different Electrolyte Concentrations and Scan Rates in Mesoporous Carbon Electrode-Based Capacitance	
F. Md Jamil, M.A. Sulaiman, S. Mohd Ibrahim, A.K. Masrom and M.Z.A. Yahya	3
Microporous Chitosan-Succinonitrile Membrane for Lithium Rechargeable Batteries	
N.U. Taib and N.H. Idris	8
Effect of Heat Treatment on the Micro-Structural, Crystallinity and Photocatalytic Properties of Hydrothermally Prepared Titanate Nanowires	
M. Siti Mariam, A.B. Siti Najihah, A.Z. Zuhana and M. Abd Kadir	13
The Effect of NiO Content on the Physical Properties of NiO–Samarium Doped Ceria Carbonate Composite Anode Powder for Solid Oxide Fuel Cells	
S.A. Muhammed Ali, A. Muchtar and M. Rao Somalu	18
Study of Two Facile Methods for Preparation of Titanium Dioxide/Graphene Nanocomposite for DSSC's Photoanode	
S.E. Mahdavi Ardakani, B.S. Mahinder Singh and N.M. Mohamed	23
Effects of Soaking Duration on the Properties of LSCF–SDCC for Low-Temperature SOFC	
L. Agun, S.F. Jimat and H.A. Rahman	28
Synthesis of Alumina Based Alkaline Catalyst for Biodiesel-Derived Glycerol to Polyglycerol	
M. Ayoub, A. Inayat, S.M. Hailegiorgis and A.H. Bhat	33
Synthesis of Zinc Oxide Thin Films by Modified Sol-Gel Route for Solar Water Splitting	
N. Sarip, S.A. Kamaruddin, F. Mahmud, S.N.M. Tawil and M.Z. Sahdan	38

Chapter 2: Materials and Technologies in Biomedical Engineering

Lignin Effect on Tensile Properties of Biodegradable Urea-Crosslinked Starch in Aerobic Soil Microcosm	
Z. Majeed, N. Mansor and Z. Man	45
Phase Transformation of Biphasic Granules of Gypsum and Carbonated Apatite at Low Temperatures	
S.N. Mohd Sabri, S. Abu Bakar, A.Y. Abdul Manaf, S.F. Hisham, M.A. Ahmad, K.J. Thevi, K. Noorsal, K.A. Shariff and K. Ishikawa	50
Effect of Methylcellulose on the Hydrophilicity of Chitosan 3D-Porous Scaffold	
N. Abu, S.H. Kasim, S.F. Hisham, S. Shamsudin, K. Noorsal and A. Mastor	55
Effect of Time on the Fabrication of Bioresorbable Biphasic Granules of Gypsum-Carbonated Apatite for Paediatric Orthopaedic Application	
S. Abu Bakar, S.F. Hisham, M.A. Ahmad, A.Y. Abdul Manaf and S.N. Mohd Sabri	60
Absorbance Analysis of <i>Escherichia coli</i> (<i>E. coli</i>) Bacteria Suspension in Polydimethylsiloxane (PDMS)-Glass Based Microfluidic	
N. Md Salih, U. Hashim, N. Nayan, C.F. Soon and M.Z. Sahdan	65
Design Process of Low Cost Uncemented Femoral Stem 316L Stainless Steel Using Investment Casting Technique	
M.Y. Baharuddin, S.H. Salleh, A. Mohd Nor, M.H. Lee, A.H. Zulkifly and M.A. Omar	70
Development of Biodegradable Mg-Ti Alloy Synthesized Using Mechanical Alloying	
E.M. Salleh, S. Ramakrishnan and H. Zuhailawati	75
Physical and Mechanical Properties of Injection Molded Co-Cr-Mo Alloy Powder for Orthopedic Applications	
N. Johari, R. Sauti, N. Abdullah, N. Mohd Zainon, B. Meh, M.N. Abd Jalil, M.B. Mohd Hijazi, A.Z. Omar, M.A. Omar, M.Y. Baharuddin and A.H. Zulkifly	80

Microstructure and Mechanical Properties Study of CoCrMo Parts Sintered under Control Atmosphere	
M.A. Ahmad, F.S. Mohamed Fadzil, M. Mohamad, M.H. Abdul Hamid and M.A. Selamat	85
Effects of Binder and Processing Parameters on Processability of Porous Ti/HA Composite through Powder Injection Molding	
M. Rafi Raza, A. Bakar Sulong, N. Muhammad, M. Niaz Akhtar and J. Rajabi	90
The <i>In Vivo</i> Study of Metal Injection Moulding 316L Stainless Steel Fracture Fixation Plate	
M.J. Nurul Hafiza, Z. Ahmad Hafiz, B. Zunariah, I. Mohd Zulfadzli, S. Munirah and M.A. Omar	95
Mechanical Properties of Cr/CrN/CrCN/ZrN Multilayer Coatings by Physical Vapour Deposition (PVD)	
M.Z. bin Abdullah, A.N. bin Abdullah, M.H. bin Othman, A. bin Morat and M.A. bin Ahmad	99
An Improved Sensitivity SPR Biosensor Using Multilayer Graphene	
A.T. Hamid Toloue, A. Centeno and M.T. Ahmadi	103
Cross-Linked Effects by Genipin on Physicochemical Properties of Chitosan Film	
S.F. Hisham, S.H. Kasim, S. Abu Bakar, S.N. Mohd Sabri, A. Mastor, A.Y. Abdul Manaf, N. Abu, K. Noorsal and A.H. Abdul Rashid	108
Finite Element Analysis of Porous Medical Grade Cobalt Chromium Alloy Structures Produced by Selective Laser Melting	
S.A.C. Ghani, W.S.W. Harun, Z.A. Mat Taib, F.F. Ab Rashid, R.M. Hazlen and M.A. Omar	113

Chapter 3: Composites and Ceramics

Flexural Strength Analysis of Basalt Fiber Reinforced Composite Layup Structure	
H. Muqsit, A.N. Mengal and S. Karupannan	121
Delamination Analyses of GFRP Composites under High Speed Conditions and Various Drill Geometries	
G.Z. Keh, C.L. Tan, W.M.M. Irina, A.I. Azmi, K.W. Leong and M.N.M. Radzi	126
Thermal Conductivity and Latent Heat Properties of Microencapsulated Phase Change Material (μPCM)/Multiwall Carbon Nanotube (MWCNT) Composites for EVs Application	
A.Z.I. Abdullah, M.F. bin Abdollah, B.T. Tee, H. Amiruddin, A.K. Mat Yamin and N. Tamaldin	131
Influence of Different Matrices on the Tensile and Impact Properties of Treated Kenaf Composites	
N.H. Bakar, K.M. Hyie, A. Jumahat, E.N.A. Latip, A. Kalam and Z. Salleh	136
Preparation of Ceramic Hollow Fiber Membrane Using Phase Inversion and Sintering Technique	
N. Abdullah, M.A. Rahman, A.F. Ismail, M.H.D. Othman and J. Jaafar	141
Physical and Mechanical Properties of Warm Compacted Carbon-Copper Composite by Different Powder Formulation	
M.A. Nurul Hadi, M.A. Selamat, S. Budin, T. Ria Jaafar, A.A. Mahaidin, Z. Syazwan Sulaiman, A.Z. Omar and M.B. Mohd Hijazi	146
Effects of Poly(Vinyl Chloride)-Grafted-Maleic Anhydride on the Poly(Vinyl Chloride)/Epoxidized Natural Rubber/Kenaf Core Powder Composite	
R. Abdul Majid, H. Ismail and M.T. Razaina	151
Tensile Properties and Morphological Studies of Kenaf-Filled Linear Low Density Polyethylene/Poly(Vinyl Alcohol) (LLDPE/PVA/KNF) Composites: The Effects of KNF Loading	
A.L. Pang, H. Ismail and A. Abu Bakar	156
Integrated Process of Ceramic Slip Using Rotating Technique	
A.R.M. Sahab, N.H. Saad, F. M. Salleh, A. Hamidi, D. Said Ngah and W.D. Teng	161
rHDPE/Wood Fiber Composites: Effect of Phthalic Anhydride on Tensile Properties, Swelling Behavior and X-Ray Diffraction	
A.G. Supri and M.P.M. Hanif	166
Fabrication of Carbon-Copper Composites Using Local Carbon Material: Microstructure, Mechanical, Electrical and Wear Properties	
M.A. Selamat, A.A. Mahaidin, M.A. Nurul Hadi, Z.S. Sulaiman and M.I. Abdul Razak	171
Chemical Reaction and Morphology of Polypropylene (PP)/Recycled Acrylonitrile Butadiene Rubber (NBRr)/Banana Skin Powder (BSP) Composites with γ-APS	
A. Abdul Ghani, R. Santiagoo, T.A.Z. Tunku Ozir, S.S. Ting and H. Ismail	175

Effects of APS Silane on Tensile Properties of Polypropylene (PP)/Recycled Acrylonitrile Butadiene Rubber (NBRr)/Banana Skin Powder (BSP) Composites	
A. Abdul Ghani, R. Santiagoo, T.A.Z. Tunku Ozir, S.S. Ting and H. Ismail	180
Optimization of Natural Fiber Composite Parameter Using Taguchi Approach	
F. Md Yusof, M.K.H. Abd Rahim, A.S. Samsudin, N.H. Mohamad Nor, Z. Ahmad and Z. Halim	185

Chapter 4: Polymers and Rubber

Influence of Silanized-Silica and Carbon Black on the Cure and Mechanical Properties of Natural Rubber/Recycled Chloroprene Rubber (NR/rCR) Blends	
S.Z. Salleh, H. Ismail and Z. Ahmad	191
The Occurrence of Phase Separation in Microcrystalline Cellulose Filled Natural Rubber Films	
R. Che Ali and A. Mustafa	196
Suitability of Malaysian Fly Ash for Geopolymer Synthesis	
A.A. Siyal, K.A. Azizli, L. Ismail, Z. Man and M.I. Khan	201
The Effect of Triacetin on the Plasticization Efficiency and Tensile Properties of Polyvinyl Chloride/di-2-Ethyl Hexyl Phthalate/Triacetin Compounds	
R. Arjulizan and N.F. Asul Kahar	206
The Effect of Caprolactam on Tensile Properties and Morphology of Recycled High Density Polyethylene/Ethylene Vinyl Acetate (RHDPE/EVA) Blends	
A.R.H. Fatimah, A.G. Supri and Z. Firuz	211
Synthesis and Functionalization of Silicone Hydride Copolymer with Allyl Methacrylate via Hydrosilylation Method	
Z.A.A. Hamid and L. Hong Fook	216
Utilization of Waste Natural Rubber Latex for Cleaning Application	
N.F. Ramli, N.S. Dzulkafly and A.A. Rashid	221
Effect of Natural Weathering on Tensile Properties of Low Density Polyethylene/Thermoplastic Soya Spent Powder Blends	
M.A. Nuradibah, S.S. Ting, N.Z. Noriman, S. Ragunathan and H. Ismail	226
A Short Review of Infra-Red Spectroscopic Studies of Geopolymers	
M.I. Khan, K.A. Azizli, S. Sufian, Z. Man, A.S. Khan, H. Ullah and A.A. Siyal	231
Rheological Properties and Extrusion Performance Evaluation of Silica Filled Epoxidized Natural Rubber (ENR) Compounds as Compared to Natural Rubber/Butadiene Rubber (NR/BR) Compound	
T.Z. Zaeimoedin, M. Mustafa Kamal and A.K. Che Aziz	236
Scaling Effects for Compression Loaded of Corrugated-Core Sandwich Panels	
M.R. Mat Rejab, N.Z.M. Zaid, J.P. Siregar and D. Bachtiar	241

Chapter 5: Metals, Alloys and Processing Technologies for Mechanical Engineering

Diffusion Bonding of Sialon to AISI 420 Martensitic Stainless Steel with Cut Off Heat upon Cooling	
N.N. Md Ibrahim, P. Hussain and M. Awang	249
A Comparative Study of Obliquely Positioned Aluminium Alloy 6063 Tubes under Axial Loading	
H. Hashim, A.R. Ab Ghani, H. Lukman and N.V. David	254
Sintering Effects on the Microstructure and Mechanical Properties of CoCrMo Alloy	
M.H. Abdull Hamid, F.S. Mohamed Fadzil, M.A. Selamat and M.A. Ahmad	259
Effects of Compaction and Sintering Temperature to the Alloyability of FeCrCu Powder Mixture	
M.M. Rahman and S.R. Yogaswerarow	264
An Overview of Powder Metallurgy (PM) Method for Porous Nickel Titanium Shape Memory Alloy (SMA)	
Z. Abdullah, R. Razali, I. Subuki, M.A. Omar and M.H. Ismail	269

Solvent Debinding of Inconel 718 Fabricated via Metal Injection Molding M.J. bin Suleiman @ Ahmad, N. binti Johari, M.A. bin Ahmad, R. bin Ibrahim, A.B.D.R. bin Abu Talib and M.Y. bin Harmin	275
Dimensional Accuracy Study of Open Cellular Structure CoCrMo Alloy Fabricated by Selective Laser Melting Process Z.A. Mat Taib, W.S.W. Harun, S.A.C. Ghani, M.F.F. Ab Rashid, M.A. Omar and H. Ramli	280
Tribology Properties of Injection Moulded Co Based Alloy N. Mohd Zainon, N. Abdullah, N. Roslani, R. Sauti, M.A. Omar, B. Meh, M.N. Abdul Jalil and A.Z. Omar	285
Feedstock Formulation of Open-Pore Cell Copper Foam via Metal Injection Molding N. Abdullah, M. Mohamad, M.A. Omar, M.J. Suleiman @ Ahmad, A.A. Mahaidin, N. Mohd Zainon, M.A. Nurul Hadi, B. Meh, M.N. Abd Jalil, M.B. Mohd Hijazi and A.Z. Omar	290
Shape Memory Behaviour of NiTi Alloy Produced by MIM Using Palm Stearin Based Binder M.H. Ismail, R. Razali, Z. Abdullah, I. Subuki and N. Muhamad	295
Studying the Effect of Precipitation Hardening on 6061 Aluminum Alloy Weldments T. Ahmad, M. Kamran, M. Faizan, R. Ahmad, B. Ariwahjoedi, F. Hussain and F. Riaz	300
Effect of Rare Earth Metals on Diffusion and Porosity Deformation of Al-11Si-2Cu Cast Alloy R. Ahmad and M.B.A. Asmael	305
The Effect of Different Composition of Stainless Steel (SS316L) Foam via Space Holder Method M.F. Mahammad Rafter, S. Ahmad and R. Ibrahim	310
Assessing the Physical Properties of Cobalt Chromium Molybdenum (CoCrMo) Foams with Different Composition N.S. Abdul Manaf, S. Ahmad and R. Ibrahim	314
Micro-Hardness Study on AISI P20 Steel Using Taguchi Method C.K. Biswas, R. Sethi and S. Gangopadhyay	319
A Study on the Optimization of Solvent Debinding Process for Powder Injection Molded 316L Stainless Steel Parts M. Aslam, F. Ahmad, P.S.M. Bm-Yousoff, K. Altaf, M.A. Omar and M.R. Raza	324
Rheological Study of a Copper Feedstock M.J. bin Suleiman @ Ahmad, N. binti Abdullah, M.A. bin Omar, N. binti Mohd Zainon, A.A. bin Mahaidin, M.A. bin Nurul Hadi and M. bin Mohamad	329
Metal Injection Moulding of Hip Stem CoCrMo Alloy Powder Using Palm Stearin Binder System M.A. Omar, N. Abdullah, R. Sauti, N.M. Zainon, N. Johari, M.H. Zulkifly and M.Y. Baharudin	334
Examination of Machining Parameters on the Surface Roughness of Stavax ESR Material Using Electro Discharge Machining M. Asmelash and M. Azhari	339

Chapter 6: Coating and Surface Engineering

Preliminary Investigation of Hydrophilic Polymer (HP)/Epoxidised Natural Rubber (ENR25) Blends Film Formation for Rubber Glove Donning Coating Application N. Mohd Yazid, R. Che Ali and A. Mustafa	347
Growth of TiO₂ Thin Films by Atomic Layer Deposition (ALD) R. Hussin, K.L. Choy and X.H. Hou	352
Effect of Polyaniline Loading on Tensile Properties, Electrical Conductivity and Swelling Behavior of Poly(Vinyl Chloride)/Poly(Ethylene Oxide) Conductive Films M.D. Siti Hajar, A.G. Supri and A.J. Jalilah	357
Effect of Immersion Coating Deposition Time on Solder Joint Properties Z.A. Abd Malek, H. Wirda Kahar, S.R.A. Idris and M. Ishak	361
Inhibitive Effect of Fatty Amide and Secondary Species on the Corrosion of Carbon Steel I.M. Ibrahim, J. Jai and M.A. Hashim	366
Degradation of Compressor Blades of Gas Turbines in Coastal and Industrial Environment S.M. Yunus, S.A. Sekari and M.H. Abdul Ghaffar	371
Degradation Assessment of Gas Turbine Hot Gas Path Components A.A. Pauzi	376

Surface pH Measurement during CO₂ Corrosion by an IrOx pH Probe S. Kakooei, M.C. Ismail and B. Ari-Wahjoedi	381
Physical Characterization of Titanium Dioxide Nanofiber Prepared by Electrospinning Method N.A.M. Nor, J. Jaafar, M.A. Rahman, M.H.D. Othman, N. Yusof, W.N.W. Salleh and W.J. Lau	386
Deposition of Electroless Nickel Boron as Printed Circuit Board Surface Finish H. Kahar, Z.A. Abd Malek, S.R.A. Idris and M. Ishak	391

Chapter 7: Semiconductors, Optical and Photonic Materials

Dose Reassessment by Using PTTL Method in Ge-Doped SiO₂ Optical Fiber Thermoluminescence Dosimetry N.N. Zulkepely, S.N. Mat Nawi, N. Wahib, Y. Mohd Amin, R. Md Nor, M.J. Maah and D.A. Bradley	399
The Optical Properties of Epoxy for Temperature Sensitive Sensor K. Mohd Isha and S. Hashim	404
Thermoluminescence Characteristics of Cylindrical Optical Fibers with Different Diameters in Radiation Dosimetry Subjected to Electron Irradiation S.N. Mat Nawi, N. Wahib, N.N. Zulkepely, Y. Mohd Amin, U. Ngie Min, D.A. Bradley, S.F. Abdul Sani and M.J. Maah	409
Effect of Crystallite Size on the Optical and Structural Properties of Gadolinium-Doped Zinc Oxide N.F. Ab Rasid, S.N.M. Tawil, N. Che Ani and M.Z. Sahdan	414
Optical and Color Properties of Green and Red Phosphor Mixtures Doped into Hybrid Sol-Gel Matrix to Generate White Light N.H. Yusoff, W. Shualdi, N.M.A. Nik Abdul Aziz and W.M.N. Wan Jaafar	419
Investigation of the Structural, Optical and Electrical Properties of Gadolinium-Doped Zinc Oxide Films Prepared by Sol-Gel Method N. Che Ani, M.Z. Sahdan, N. Nayan and S.N.M. Tawil	424
Fluorescence Extended X-Ray Absorption Fine Structure Study on Local Structures of Rare-Earth-Doped InGaGdN S.N.M. Tawil, S. Emura, D. Krishnamurthy and H. Asahi	429
Thermoluminescence Response of Germanium-Doped Silica (SiO₂) Optical Fibers Subjected to X-Ray Irradiation N. Wahib, S.N. Mat Nawi, N.N. Zulkepely, Y. Mohd Amin, S.L. Yap, D.A. Bradley, S.F. Abdul Sani and M.J. Maah	434
Effects of Annealing Process on the Structural, Optical and Electrical Properties of Copper Oxide Thin Films Grown by Immersion Technique M.F. Nurfazliana, S.A. Kamaruddin, N. Nayan, H. Saim and M.Z. Sahdan	439

Chapter 8: Nanoscience

Optical and Electrochemical Properties of Co₃O₄/SiO₂ Nanocomposite G.A.M. Ali, O.A. Fouad, S.A. Makhoulouf, M.M. Yusoff and K.F. Chong	447
Effect of Diluted Nano-Oil on the Anti-Wear and Friction Properties M.I. Hakimi Chua Abdullah, M.F. bin Abdollah, H. Amiruddin, N. Tamaldin and N.R. Mat Nuri	452
XRD Analysis and Morphological Studies of Spin Coated LiNbO₃ Nano Photonic Crystal Prepared for Optical Waveguide Application M.A. Fakhri, Y. Al-Douri, U. Hashim and E.T. Salim	457
Fabrication of Ag/ZnO Nanoparticles Using Ascorbic Acid as Reducing Agent J. Andas and N.W. Subri	462
The Effects of Reaction Temperature on the Morphology and the Quality of the Carbon Nanotube - Silica Microparticles R.N.I.R. Othman and A.N. Wilkinson	467
Synthesis of Silver Decorated Silica Nanospheres for Surface Enhanced Raman Scattering (SERS) Substrates A.S. Siti Shafiqah, R. Md Nor, Y.M. Amin and D.A. Bradley	471

Effect on Variation of KMnO_4 Amount for Production of Graphene Oxide (GO) N.M.S. Hidayah, W.W. Liu, W.L. Chin, N.Z. Noriman and U. Hashim	476
Thermal Analysis of Polylactic Acid/Liquid Natural Rubber Reinforced with Multi-Walled Carbon Nanotubes A. Mat Ali and S.H. Ahmad	481
Synthesis, CO_2 Adsorption Performance of Modified MIL-101 with Multi-Wall Carbon Nanotubes S. Ullah, M.A. Bustam, A.E.I. Elkhalfah, N. Riaz, G. Gonfa and A.M. Shariff	486
Effect of Colloidal Nano Silica as a Viscosity Modifying Agent in Self Compacting Concrete with High Volume POFA S.J. Kojouri, A.A. Abang Ali and N. Farzadnia	491
Thermophysical Properties of Alumina-Ethanol-Water Based Nanofluids S. Umer Ilyas, R. Pendyala, N. Marneni and A. Mohd Shariff	496
Synthesis and Characterization of Single-Layer TiO_2 Nanotubes M. Zulfiqar, A.A. Omar and S. Chowdhury	501
Morphology and Structural Characteristic of Nanocrystalline Cellulose (NCC) Hydrolyzed from Filter Paper N. Asari @ Mansor, S.N. Kasa, I. Nizam and A.H. Ahmad Termizi	505
Nanospheres Effect of Different Sodium Dodecyl Sulfate Ratios towards Particle Size of Polystyrene Nanosphere M.N. Nordin, N. Asari, K. Isha, W. Suhaldi, A.A. Mahaidin and N. Mohd Azmi	510
Structural and Field Electron Emission Properties of Pure and Al-Doped ZnO Nanorods Prepared by Sol-Gel Method H.A. Rafaie, R. Md Nor and Y. Mohd Amin	515

Chapter 9: Materials and Technologies in Environmental Engineering

Synthesis and Characterization of $\text{Fe}_2\text{O}_3/\text{TiO}_2/\text{SiO}_2$ and $\text{Fe}_2\text{O}_3/\text{TiO}_2$/Activated Carbon Nanocomposite Photocatalysts for Dye Removal Z. Ahmad Zubir, S.M. Ibrahim, N.A. Muhammad, M.I. Ahmad, F.Y. Yeoh, T. Lee and N.S. Shaari	523
Effect of Single and Bimetallic Ni, V and Mn Transition Metal Ion Doping on the Properties of Anatase/Brookite TiO_2 Photocatalyst N.Z. Mohamed Islam, H. Kosslick, M.T. Zainuddin, Z.A. Zubir, S.A. Abdul Aziz Nazri, M.Z. Abdul Malek, M.I. Mohd Ezwan, S.N. Md Salleh and M.S. Abdul Aziz	527
Solar-Photocatalytic Degradation of Waste from CO_2 Removal System Using Metal Doped TiO_2 Photocatalysts: Effect of TiO_2 Support N. Riaz, M.A. Bustam, S. Ullah, A.E.I. Elkhalfah, G. Gonfa and A.M. Shariff	532
Development of Ionothermal Synthesis of Titania Nanomaterial for Waste-Water Treatment S. Chowdhury, P.C. Mandal, M. Zulfiqar and D. Subbarao	537
The Effects of Oil Palm Empty Fruit Bunch Sorbent Sizes on Plumbum (II) Ion Sorption S. Daneshfozoun, B. Abdullah and M.A. Abdullah	542
Development and Characterization of Amine-Clay Hybrid Adsorbents for CO_2 Capture A.E.I. Elkhalfah, M.A. Bustam, A. Mohd Shariff, S. Ullah, N. Riaz and G. Gonfa	547
Esterification of Corn Silk Fiber to Improve Oil Absorbency R. Asadpour, N. Sapari, M. Hasnain Isa, S. Kakooei, K.U. Orji and S. Daneshfozoun	552
Catalytic Gasification of Oil Sludge Wastes from Petroleum Industries for Hydrogen Production P.C. Mandal and S. Chowdhury	557
Preparation and Characterization of PVDF-DMAc-Nano SiO_2 Distillation Membrane A. Hamidi, W.D. Teng and S. Abdullah	561
Synthesis of Ionic Liquid Polymer Incorporating Activated Carbon for Carbon Dioxide Capture and Separation H. Mahmood, M.H.A. bin Ahmad Sayukhi, M. Moniruzzaman and S. Yusup	566
Particle Size Measurement in Waste Water Influent and Effluent Using Particle Size Analyzer and Quantitative Image Analysis Technique T. Khanam, W.N. Syuhada Wan Ata and A. Rashedi	571

Chapter 10: Natural Materials and Applied Biotechnologies for Industrial Application

Friction Properties of Waste Cooking Oil with Banana Peel Broth M.Z. Mohd Razi, M.F. Abdollah, N.R. Mat Nuri, H. Amiruddin and N. Tamaldin	579
Preparation and Characterization of Lignin from Malaysian Coconut Coir Husk (CCH) as a Potential Precursor in Phenol-Formaldehyde (Phenolic) Resins for the Plastics Industry N.F. Nabila Saari, D. Samsudin, N.M. Abdul Wahab, N.A. Majid, R. Daik and M.A. Mohd Ishak	583
Effects of Pressure and Temperature on the Dissolution of Cellulose in Ionic Liquids M. Moniruzzaman, H. Mahmood, M.F. Ibrahim, S. Yusup and Y. Uemura	588
Properties Evaluation of Micro-Crystalline Cellulose and Starch as Bio-Filler in Rubber Compounding M.K. Mansor and R. Che Ali	593
Tensile Properties of Rice Straw Fiber Reinforced Poly(Lactic Acid) Biocomposites N.H. Mat Zubir, S.S. Ting, R. Santiago, N.Z. Noimam and J. Wang	598
Tensile and Fracture Toughness Properties of Coconut Spathe Fibre Reinforced Epoxy Composites: Effect of Chemical Treatments A.H. Abdullah, F.F. Abdul Mutalib and M.F. Mat	603
Corn Stalk Fiber Material by Chemical Pulping Process for Pulp and Paper Industry Z. Daud, M.Z. Mohd Hatta, A.A. Abdul Latiff and H. Awang	608
Thermal Effect of the Spray Drying Process on the Quality of Tongkat Ali Extract H. Noor Hafiza, A.A. Azila, W.Z. Wan Mastura, Y. Harisun and R. Aziz	612

Chapter 11: Chemical Technologies in Industry

Capillary Force-Aided Gas Hydrate Growth in Shut-In Conditions J. Divan, B. Lal, K.M. Sabil and P. Hammonds	619
Failure Criteria and its Application in Wellbore Studies S. Irawan, M. Bataee and M.R. Zare	624
Leaching and Kinetic Modeling of Malaysian Low Grade Manganese Ore in Sulfuric Acids S. Ismail, H. Hussin, S.F.S. Hashim and N.S. Abdullah	629
Advances in Evaluation of Surfactant Performances at High Temperature by Static Foam Tests M. Mumtaz, I.M. Tan, M. Mushtaq and M. Sagir	634
The Presence of Additive Mixtures (THF/SDS) on Carbon Dioxide Rich Gas Mixture Hydrate Formation and Dissociation Conditions Q. Nasir, B. Lal and L.K. Keong	639
The Utilization of Recycled Newspaper in the Production of Cellulose Microfiber M.A. Mohamed, W.N. Wan Salleh, J. Jaafar and A.F. Ismail	644
Preliminary Study on the Synthesis of ZIF-8 Membranes via <i>In Situ</i> and Secondary Seeded Growth Methods L.S. Lai, Y.F. Yeong, K.K. Lau and M.S. Azmi	649
Parametric Study on the Heating Values of Products as via Steam Gasification of Palm Waste Using CaO as Sorbent Material A. Inayat, M.M. Ahmad, M.I. Abdul Mutalib, S. Yusup and Z. Khan	654
Volumetric Properties of Alkali Salt in Aqueous 1-Butyl-3-Methylimidazolium Tetrafluoroborate at Various Temperatures B. Lal, L.K. Keong, M.A. Bustam, S. Sufian and T. Murugesan	659
Photo Oxidative Extractive Desulfurization of Model Oil Using Fe/TiO₂ Photocatalyst and Eutectic Based Ionic Liquid: Effect of Metal Loading H.F. Mohd Zaid, C. Fai Kait and M.I. Abdul Mutalib	664