

Table of Contents

Preface

Chapter 1: Structural Alloys

Microstructure and Super-Elasticity of Fe-33Mn-17Al-8.5Ni (at. %) Alloy for Structural Applications	
P. Kamugisha, M.F.M. Fahmy, A.A.A. Nada and M.A.H. Gepreel	3
Phase Formation of Novel Al-Mg-Zn-Cu-Si Lightweight High Entropy Alloy	
G. Nyaforkpa, M. Emam and M.A.H. Gepreel	9
Effect of Heat Treatment on Formability of AZ61 Magnesium Alloys	
A.K. Alfozan	15
Modeling and Optimization of Turning Hastelloy C-276 under Sustainable Machining Environments	
B. Singh, S. Singh, V. Aggarwal and G. Singh	21

Chapter 2: Polymers and Composite Materials

Analysis of the Curing Behavior of Cyanate/Epoxy Resins for Fusion Magnets	
B. Baoleer, Y. Xiang, L. Shi, W.T. Sun, Z.X. Wu, R.J. Huang and L.F. Li	35
Rheological and Thermal Characterization of Glycerol Monostearate (GMS) as Compatibilizer on Polyethylene-Palm Stearin Composite	
I. Subuki, N.A. Ramlee, A.R.M. Daud, M.H. Ismail and N. Rasid	41
Glass Transition Temperature and Mechanical Properties of Poly(Ethylene Carbonate)/Organoclay Composites	
N.A. Ramlee, N.S.A. Ibrahim, B.J. Victor and N.Z.K. Shaari	49
Effect of Rubber Formula on Performance of Natural Rubber Based Foam for Insulating Ceiling Board Application	
N. Jantawong, K. Boonkerd and K. Hancharoen	55

Chapter 3: Protective Coatings

Effect of Current Density on Hardness of Ni-P/Diamond Composite Coatings Fabricated by Electrodeposition	
N. Kothanam, C. Hom-on, J. Srimaneerat, P. Wintachai, P. Moolla, K. Harachai and P. Jaroenapibal	63
Influence of Duty Cycle on the Phosphorus Content and Hardness of the Ni-P Coatings Produced by Pulse-Current Electroplating	
P. Wintachai, N. Kothanam, K. Harachai, N. Triroj and P. Jaroenapibal	69
Electrochemical Metallization for Enhancing the Quality and Performance of Electric Motor	
C.M. Llacohua, W.C. Escobar, R.S. Reyes and G.W.Q. Santivañez	75

Chapter 4: Preparation and Properties of Nanomaterials

Preparation of Silver Nanoparticles Deposited on TEMPO-Oxidized Cellulose Nanofibers	
P. Phaonong, S. Tanpichai and A. Boonmahitthisud	83
Characterization and Self-Cleaning Properties of Silk Fabric Coated by Chitosan-Xyloglucan/nano-TiO₂ Composite Film	
C. Na Lampang, P. Sriprom, K. Manamoongmongkol, P. Assawasaengrat, W. Narkrugsa and L. Phumjan	89
Investigation of Polylactic Acid Nanofibers as Enhanced Plant Growth Medium by Improved Melt-Blowing Method	
S.P. Tsai, W. Wu, H. Sota, T. Hirogaki and E. Aoyama	95

Chitosan-Based Coating Incorporated with Chitin Nanofibers for Extension of the Shelf Life of Fruits	
P. Kaeokanphai, S. Tanpichai and A. Boonmahitthisud	101
Characteristics of Mesoporous Silica Nanoparticles-Benzotriazole (MSN-BTA) Using Rice Husk as an Environmentally Friendly Precursor	
L. Rumiyanthi, S. Garcia, M.M.F. Syamsuri, R. Marjunus, N.I. Istiqomah, C. Chotimah and E. Suharyadi	107
Optical Absorption of TaS₂ and TaSe₂ Transition-Metal Dichalcogenides	
T.N. Do, P.H. Shih and G. Gumbs	113