

Table of Contents

Preface

Chapter 1: Properties and Processing of Steels and Alloys

Tensile Strength of Wire-Woven SUS 304 Austenitic Stainless Steel R.T. Dewa, D.M. Adinata, R. Akbar and M.R.A. Yasir	3
Study Effect of Holding Time at Post Weld Heat Treatment (PWHT) on Joint Dissimilar Welding ASTM 335 P11 to ASTM 304L under Controlled Condition S. Ismadi and W. Winarto	9
The Effect of Cetyl Trimethylammonium Bromide Addition as Surfactant in Multiwalled Carbon Nanotube-Based Nanofluid for Quench Medium in Steel Heat Treatment Application W.N. Putra, M. Ariati and B. Suharno	21
A Novel Processing Route in the Mechano-Synthesis of Austenitic 58Fe25Ni17Cr Oxide Dispersion Strengthened Cast Alloy through Y_2O_3 Pre-Linking P. Farihin, B. Suharno, M. Dani, A. Andryansyah, D.A. Prastowo, A. Insani and D.H. Prayitno	29
Effect of Weight Percent Mg and Heat Treatment on the Mechanical Properties of Al10Si Aluminum Alloy Casting Products Car Chassis Materials J.J. Numberi, J. Joni, E.I. Bhiftine, R.T. Dewa, A.N.S. Permata, W.D. Lestari, M.S. Utama R., M.I. Atami, A. Ariesta and M.R.A. Yasir	41
Corrosion and Microstructure on the Casting Product Propeller Shaft Model of Al6063 Aluminum Alloy Base Materials J. Joni, E.I. Bhiftine, O. Ranteallo, R.T. Dewa, A.N.S. Permata, M.D. Nayaka, A. Zulhazmi and I.A. Priyono	53
Studying Effects of Heat Treatment on Friction Stir Welding of Al 7075 D.M. Nhat, P.Q. Trung and B.D. Khanh	63
A Study on Optimizing the Parameters of the Heat Treatment Process on Rotary Friction Welding of Aluminum Alloy A6061 P.B.H. Nam, P.Q. Trung and B.D. Khanh	71

Chapter 2: Biocomposites and Ceramics

Predicting the Tensile Strength of 4D Printed PLA/EPO/Lignin Biocomposites Using Machine Learning A.F. Kamarulzaman, N.D. Haris, H. Anuar, S.F. Toha, Y.A. Alli and M.R. Manshor	81
Functionalization and Deconvolution of Tubular Ceramic Support Membrane Prepare from High Silica Spent Bleaching Earth by Centrifugal Casting A. Rahma, M. Elma, M. Roil Bilad, I. Syauqiah, R.A. Patria, M. Ziqri and D. Kartikawati	87
Effect of Coupling Agent on the Properties of Pineapple Leaf Fiber/ Polypropylene Composite N.F.Q.A. Ghani, N. Salim, N.H.A. Bakar, R. Roslan and A.G.E. Sutjipto	95

Chapter 3: Additive Manufacturing

Mechanical Properties of FDM Fabricated PLA Parts: Effect of 3D Printing Parameter Optimization Using Taguchi Method C.E. Alviar and B.A. Basilia	105
Evaluating the Accuracy of Finite Element Analysis in Predicting Mechanical Properties of Additively Manufactured Parts C. Promae, S. Das and A. Nassehi	113
Development of 3D Printing Filaments from Recycled PLA Reinforced with Nanoclay B.A. Basilia, J.N. Concepcion and J.J. Prila	121
3D-Printed Polymer Spare Parts for Various Applications J.R.C. Dizon	127

Towards Smart Additive Manufacturing: Cost and Component Complexity F. Tarlochan and S. Alsendibad	133
Effect of Nano-Alumina (Al₂O₃) Loading on the Thermo-Mechanical Properties of Poly(Lactic Acid) for Fused Deposition Modeling 3D Printing Applications M.S. Tolentino, B.A. Basilia and P.A.N. de Yro	139
Fatigue Resistance Assessment of WAAM Carbon Steel M. Hietala, T. Rautio, M. Jaskari, M. Keskitalo and A. Järvenpää	147