

Table of Contents

Preface

Chapter 1: Properties and Processing Technologies of Structural Metals

Microstructure Evolution and Hardness Properties of Nodular Cast Iron for Varying Tempering Time H. Oktadinata, M.S. Dafi and D.H. Prajitno	3
Microstructure Refinement by Austenizing and Tempering in Low Alloy Carbon Steel Casting M. Chamim, Haikal, M. Vendy and N.H. Fatimah	11
Analysis of the Effect of Time on Tensile Strength and Hardness of Electroplating Method Using Nickel on Aluminum 7075 F. Setiawan, D. Walikram, Sehonu, T. Ariebowo and I.R. Putra	17
Comparison of Microstructure, Yield Strength, Tensile Strength, and Modulus of Elasticity between Gray Cast Iron and Nodular Cast Iron A.S. Darmawan, A.D. Anggono, A. Yulianto, B.W. Febriantoko, Masyrukan and A. Hamid	25
Corrosion Resistance Analysis of Al-Cu, Al-Zn and Al-Cu-Zn Alloys W. Suprpto, Zuliantoni, P.H. Setyarini, F. Gapsari, Sudjito and Y.S. Irawan	33
Hydroxyapatite Effect on the Corrosion Rate of AMC Al-Zn by Powder Metallurgy Zuliantoni, W. Suprpto, P.H. Setyarini and F. Gapsari	41
Aluminum Oyster Mushroom Frying Surface Quality Improvement through Anodizing A. Rachmawati, P.H. Setyarini, V.I. Mahendra, A.M. Wati, S. Fajriani, M.A. Ambayoen and S. Azizah	49
Secondary Material Casting of Al-Si for Making Handle Brake in Variation of Duct P. Partono, N. Hidayat, Masyrukan and M.R. Pangaribawa	55
The Effect of Finishing Allowance and Milling Methode on Surface Roughness in the Finishing Process of Al5052 and Al7075 Burhanudin, Margono, E. Suryono, N.T. Atmoko and Zainuddin	63
Mechanical Properties and Microstructure Evolution of Double-Sided Friction Stir Welding AA6061-T6 Hendrato, Jamasri, Triyono and P. Puspitasari	73
Optimization of Quench Polish Quench (QPQ) Coating Process Using Taguchi Method M. Saravanan, M. Vasanth, S. Boopathi, M. Sureshkumar and V. Haribalaji	83
Study of the Effect on Friction Welded Surface on Copper Aluminium Juncture M. Senthilkumar, L.K. Singh, S. Lakshmanan, A.M. Shanawaz and M. Selwin	93
Wear Behavior and Wear Worn Surface Analysis on Hardox Steel G. Harinarayanan, V.K. Krishnan, M.P. Natarajan, V. Surender and J. Gowthaman	99
Optimization and Performance of Laser Machining on Domex Steel B. Manikandan, G. Harinarayanan, V. Surender, D. Ravi and A.K. Vishvakarma	105

Chapter 2: Cryogenic Treatment of Metals

Investigation of Cryogenic Thermal Conductivity of AA7115 Subjected to Various Heat Treatments K. Arunprasath, M. Muthumalai, S. Kavitha and T.R. Vijayaram	115
Impact of Single and Duplex Cryogenic Jets on Mechanical and Physical Characteristics in Turning of Titanium Superalloys A. Shanmuga Vadive, P. Selvakumar, P. Mathan and P. Ramkumar	125
Influence of Cryogenic Behaviour on Copper Electrode for Non-Conventional EDM V. Manikandan, Y. Varuvel Antony, P. Mohamedsharifkhan, P. Yuvannarasimman and K. Senthilnathan	139
Stir Casting and Successive Rolling of Aluminium Alloy 2218 MMCs Reinforced by High-Entropy Alloy Particles M. Vijayakumar, M. Pradeep Rai, M. Muthukrishnan and N. Gnanakumar	151

Chapter 3: Biomaterials and Wastewater Treatment

Removal of Mercury (II) by Adsorption in Aqueous Solutions with Pomegranate Husks N.L.T. Ruiz, G. Garza, I.L. Hernández and M.G.M. Treviño	163
Production of High Carbon Composite from Catalytic Pyrolysis of <i>Pisum sativum</i> Peels for Methylene Blue Dye Decolorization N.O. Rubangakene, A. El Wardany, M. Fujii, H. Sekiguchi and H. Shokry	171
Insights into Drug-Loading Capacity of Bio-Zirconium Metal-Organic Frameworks Nanoparticles for Tetracycline Hydrochloride A.A. Hanafi, M. El-Kady and M. Ayad	179