

Table of Contents

Preface

Chapter 1: Properties and Processing of Alloys

Analysis of Cutting Parameters for Enhanced Machining Efficiency and Tool Life in Milling of Nickel Titanium Alloy Through FE Simulation C. Panji, P. Yavagal, V.N. Kulkarni, S.G. Gurusiddayya, N.D. Chakravarthy and Y. Rawal	3
Investigation of Mechanical and Microstructural Characteristics of Diffusion-Bonded CpAl/IN718 Interface S. Khan, K. Khadija, Z. Ali, H. Ali and B. Ashfaq	15

Chapter 2: Corrosion, Protective Coatings and Surface Treatment

Surface Characteristics and Corrosion Resistance of Multiple Shot Peened Ti-6Al-4V Weld A.D. Vishwanatha, B. Panda, A.V.R. Kumar and A.P. Athresh	27
Finite Element Modelling of Porosity in Cobalt Base-Molybdenum-Chromium-Silicon Coatings with Gurson Damage Model R. Cuamatzi-Melendez, F. Juárez-López, E. Flores-Cuamatzi and Á.d.J. Morales-Ramírez	39
Electrochemical Assessment of Ammonium Benzoate as Corrosion Inhibitor of Mild Steel in 0.5M HCl Solution: Solanum Tuberosum Extract as Surfactant O.L. Akanji, A.P. Popoola and S. Raji	59

Chapter 3: Polymers and Composites

Correlation of Wear Behavior of PBT/PC Blend with Crystallographic Structure: A Comprehensive Study on Wear Rate and Crystal Structure P. Mane, A.J. Keche and S. Chopra	83
The Investigation of Heat Resistance of Plant Fiber Sandwich Panel with Flame Retardant Core A.C. Yen, C. Gu, B.C. Xia, C. Li, W.Q. Xu and X.Z. Zhang	91
Investigating the Synergistic Impact of TiB₂ and ZrO₂ Reinforcements on Forged AA7075-Based Hybrid Metal Matrix Composites A.S. Chikkamath, V.K.V. Meti and I.G. Siddhalingeswar	97

Chapter 4: Functional and Special Materials

The Electrical Performance of Ester-Based Iron Oxide Nanofluids Incorporating Tween 20 Surfactant M.U. Amran, N. Hussin, N.A. Azizan, A.N. Mohd Khalil and R.A. Rahman	115
Infrared Analysis of Deep Eutectic Solvents (DESS) Containing Urea as a Hydrogen Bond Donor (HBD) S. Daud, L. Musa, F.H. Kasim, M.N. Salleh and N. Mustafa	125
Polyaniline/Graphene Oxide as Counter Electrode for Dye Sensitized Solar Cell System M.F.S.A. Razak, A.A. Shukor, M.N. Salleh, M.H. Zainol and I. Ibrahim	133
Effect of Benzotriazole-Silver-Based Capping System on Porosity of Mesoporous Silica Nanoparticles Synthesized Using Eco-Friendly Materials of Rice Husk L. Rumiyaniti, S. Garcia, M.M.F. Syamsuri, J. Junaidi, N.I. Istiqomah, C. Chotimah and E. Suharyadi	139