Table of Contents

Preface

Chapter 1: Advanced Composites

Mechanical and Morphological Properties of Epoxy Based Hybrid Composites Reinforced with Banana-Pineapple Fiber	
J. Madhukiran, C.R. Raju, S. Madhusudan and R.U. Rao	3
Experimentation and Analysis on Reinforced Basalt and Carbon Fibres Composite Laminate	
V. Vara Prasad	12
Evaluation of Mechanical Properties of GFRP Composites Reinforced with Single Wall Carbon Nano-Tubes by Immersion in Normal and Sea Water under Hydro-Static Pressure T.V. Babu, S.S. Kumar and P. Srinivas Reddy	21
Effect of Blast Furnace Slag and Red Mud Reinforcements on the Mechanical Properties of AA2024 Hybrid Composites G. Siva Karuna, S.V.G. Swamy and G.S. Naidu	29
A Review on Mechanical and Acoustic Emission Behavior of Basalt Fiber Reinforced Composites V. Vara Prasad and T. Eswara Rao	37
A Review on Acoustic Emission Characterization of Failure Modes of Carbon Fiber	
Reinforced Composites V. Vara Prasad and J. Nageswara Rao	43
Dynamic Mechanical Analysis and Thermo-Gravimetric Analysis on Chopped Strand Mat Reinforced with Polyester Resin and Graphite Powder P. Srinivas Reddy, T.V. Babu and S.S. Kumar	48
A Review of Recent Developments in Natural Fiber Composites and their Mechanical, Thermal & Machinabilty Properties	
V.J.J. Prasad and P. Suresh Kumar	61
Chapter 2: Properties and Machining Technologies of Structural Steels and Alloys	
TEM Analysis of Precipitates in a Low Alloy Wear Resistant Steel and Correlating with its Corrosion Behaviour	
Corrosion Behaviour S. Naseema, B. Gaurav, G. Das, V.C. Srivatsava, K.S. Rao and K.G. Krishna	75
Corrosion Behaviour	75 82
Corrosion Behaviour S. Naseema, B. Gaurav, G. Das, V.C. Srivatsava, K.S. Rao and K.G. Krishna Equal Channel Angular Extrusion of AA 5083 V. Ananda Babu, G. Swami Naidu and B. Sateesh A Combination of H ₃ BO ₃ (nm) and TiO ₂ (µm) Nano/Microparticle as an Additive to the MQL Enhances the Performance of Cutting	82
Corrosion Behaviour S. Naseema, B. Gaurav, G. Das, V.C. Srivatsava, K.S. Rao and K.G. Krishna Equal Channel Angular Extrusion of AA 5083 V. Ananda Babu, G. Swami Naidu and B. Sateesh A Combination of H ₃ BO ₃ (nm) and TiO ₂ (µm) Nano/Microparticle as an Additive to the MQL Enhances the Performance of Cutting P.S. Rao, P.V.J.M. Rao and Y.S. Rao	
Corrosion Behaviour S. Naseema, B. Gaurav, G. Das, V.C. Srivatsava, K.S. Rao and K.G. Krishna Equal Channel Angular Extrusion of AA 5083 V. Ananda Babu, G. Swami Naidu and B. Sateesh A Combination of H ₃ BO ₃ (nm) and TiO ₂ (µm) Nano/Microparticle as an Additive to the MQL Enhances the Performance of Cutting P.S. Rao, P.V.J.M. Rao and Y.S. Rao Utilization of Ring Compression Test to Investigate the Mushroom Effect and Adhesive Nature of AA2014 Billets	82 88
Corrosion Behaviour S. Naseema, B. Gaurav, G. Das, V.C. Srivatsava, K.S. Rao and K.G. Krishna Equal Channel Angular Extrusion of AA 5083 V. Ananda Babu, G. Swami Naidu and B. Sateesh A Combination of H ₃ BO ₃ (nm) and TiO ₂ (µm) Nano/Microparticle as an Additive to the MQL Enhances the Performance of Cutting P.S. Rao, P.V.J.M. Rao and Y.S. Rao Utilization of Ring Compression Test to Investigate the Mushroom Effect and Adhesive Nature of AA2014 Billets C. Harikrishna, M.J. Davidson, P. Srinivasa Raju and G.S. Rao	82
Corrosion Behaviour S. Naseema, B. Gaurav, G. Das, V.C. Srivatsava, K.S. Rao and K.G. Krishna Equal Channel Angular Extrusion of AA 5083 V. Ananda Babu, G. Swami Naidu and B. Sateesh A Combination of H ₃ BO ₃ (nm) and TiO ₂ (µm) Nano/Microparticle as an Additive to the MQL Enhances the Performance of Cutting P.S. Rao, P.V.J.M. Rao and Y.S. Rao Utilization of Ring Compression Test to Investigate the Mushroom Effect and Adhesive Nature of AA2014 Billets	82 88
Corrosion Behaviour S. Naseema, B. Gaurav, G. Das, V.C. Srivatsava, K.S. Rao and K.G. Krishna Equal Channel Angular Extrusion of AA 5083 V. Ananda Babu, G. Swami Naidu and B. Sateesh A Combination of H ₃ BO ₃ (nm) and TiO ₂ (µm) Nano/Microparticle as an Additive to the MQL Enhances the Performance of Cutting P.S. Rao, P.V.J.M. Rao and Y.S. Rao Utilization of Ring Compression Test to Investigate the Mushroom Effect and Adhesive Nature of AA2014 Billets C. Harikrishna, M.J. Davidson, P. Srinivasa Raju and G.S. Rao Low Cost Vibration Measurement and Optimization during Turning Process N.V.S. Shankar, A.G. Chand, K.H. Rao and K.P. Sai Evaluation of Process Parameters in Machining of AA6063 Alloy M. Balaji, C.H. Nagaraju, V.U.S. Vara Prasad, R. Kalyani and B. Avinash	82 88 96
Corrosion Behaviour S. Naseema, B. Gaurav, G. Das, V.C. Srivatsava, K.S. Rao and K.G. Krishna Equal Channel Angular Extrusion of AA 5083 V. Ananda Babu, G. Swami Naidu and B. Sateesh A Combination of H ₃ BO ₃ (nm) and TiO ₂ (µm) Nano/Microparticle as an Additive to the MQL Enhances the Performance of Cutting P.S. Rao, P.V.J.M. Rao and Y.S. Rao Utilization of Ring Compression Test to Investigate the Mushroom Effect and Adhesive Nature of AA2014 Billets C. Harikrishna, M.J. Davidson, P. Srinivasa Raju and G.S. Rao Low Cost Vibration Measurement and Optimization during Turning Process N.V.S. Shankar, A.G. Chand, K.H. Rao and K.P. Sai Evaluation of Process Parameters in Machining of AA6063 Alloy	82 88 96 103
Corrosion Behaviour S. Naseema, B. Gaurav, G. Das, V.C. Srivatsava, K.S. Rao and K.G. Krishna Equal Channel Angular Extrusion of AA 5083 V. Ananda Babu, G. Swami Naidu and B. Sateesh A Combination of H ₃ BO ₃ (nm) and TiO ₂ (µm) Nano/Microparticle as an Additive to the MQL Enhances the Performance of Cutting P.S. Rao, P.V.J.M. Rao and Y.S. Rao Utilization of Ring Compression Test to Investigate the Mushroom Effect and Adhesive Nature of AA2014 Billets C. Harikrishna, M.J. Davidson, P. Srinivasa Raju and G.S. Rao Low Cost Vibration Measurement and Optimization during Turning Process N.V.S. Shankar, A.G. Chand, K.H. Rao and K.P. Sai Evaluation of Process Parameters in Machining of AA6063 Alloy M. Balaji, C.H. Nagaraju, V.U.S. Vara Prasad, R. Kalyani and B. Avinash Experimental Investigation on the Performance of Vortex Tube B.V.S. Raghu Vamsi, R. Jithendra Kumar, M.R.C. Sastry, T.S. Krishna and M.K. Tej Effect of Heat Treatment of AZ91 Magnesium Alloy on the Electroless Ni-P Deposition C. Singh, S.K. Tiwari and R. Singh	82 88 96 103 109
Corrosion Behaviour S. Naseema, B. Gaurav, G. Das, V.C. Srivatsava, K.S. Rao and K.G. Krishna Equal Channel Angular Extrusion of AA 5083 V. Ananda Babu, G. Swami Naidu and B. Sateesh A Combination of H ₃ BO ₃ (nm) and TiO ₂ (µm) Nano/Microparticle as an Additive to the MQL Enhances the Performance of Cutting P.S. Rao, P.V.J.M. Rao and Y.S. Rao Utilization of Ring Compression Test to Investigate the Mushroom Effect and Adhesive Nature of AA2014 Billets C. Harikrishna, M.J. Davidson, P. Srinivasa Raju and G.S. Rao Low Cost Vibration Measurement and Optimization during Turning Process N.V.S. Shankar, A.G. Chand, K.H. Rao and K.P. Sai Evaluation of Process Parameters in Machining of AA6063 Alloy M. Balaji, C.H. Nagaraju, V.U.S. Vara Prasad, R. Kalyani and B. Avinash Experimental Investigation on the Performance of Vortex Tube B.V.S. Raghu Vamsi, R. Jithendra Kumar, M.R.C. Sastry, T.S. Krishna and M.K. Tej Effect of Heat Treatment of AZ91 Magnesium Alloy on the Electroless Ni-P Deposition	82 88 96 103 109 115

Influences of Varying Current by Tungsten Inert Gas Welding and its Process Parameters on Weld Quality of AA 6061 Aluminium Alloy	
K.H. Preethi, B.Š. Ajay Kumar, N.J. Krishna Prasad and K. Barat	136
Simulation Studies and Evolution of Mechanical Properties of AA6061 Subjected to RCS P.M. Bhovi, A.R. Naik, D. Adarsh, C.G. Ranjitkumar and K. Venkateswarlu	142
Direct Active Soldering of PEO Coated and Uncoated AA6061 Aluminium Alloy R. Sokkalingam, M.P. Shankar, A.K. Unni, K. Sivaprasad and V. Muthupandi	152
Effect of Electrolyte on Micro Arc Oxidation Coating of Al-2014 Alloy M.P. Shankar, R. Sokkalingam, K. Sivaprasad and V. Muthupandi	159
Studies on Dissimilar Friction Stir Welded Al-4Cu-TiB ₂ In Situ Composites with Base	
Alloy S. Haribabu, M. Ashfaq, K. Sivaprasad, S. Muthukumaran and R. Narayanasamy	165
Experimental Investigation on Friction Stir Butt Welded Aluminium 6061-T6 Alloy Using Taguchi L9 Experimental Approach	150
D. Maneaih, K. Prahlada Rao and K.B. Raju	176
Magnetic Non-Destructive Evaluation of Softening of Cold Rolled Low Carbon IF Steel S. Dutta, A. Panda, A. Mitra, S. Chatterjee and K.R. Rajat	187
An Experimental Study on Mechanical Behaviour of Pulsed Current Welding on Aluminum Alloy Joints	400
R. Garugubilli, M.L. Sramika and V.P. Kumar	193
A Feasibility Report on the Comparsion of the Characteristics of Manufacturing a Bearing Cover by the Processes of Sand Casting and Shell Moulding	
M.M. Vamsi, V.P. Kumar and S.H. Shariff	204