

97

ISSN 2250-2122 (print version)
ISSN 2250-2130 (electronic version)

Volume 103 · Issue 1 · January–June 2022

Journal of The Institution of Engineers (India): Series D

Metallurgical & Materials Engineering · Mining Engineering



SB
02/09/2022



The Institution of Engineers (India)

 Springer

For Circulation in India only

Journal of The Institution of Engineers (India): Series D

Volume 103 · Issue 1 · January–June 2022

ORIGINAL CONTRIBUTIONS

A Numerical Modelling Approach for Finding the Stability of Snook during Depillaring: A Case Study of Jhanjra Mine

S. Samanta · R.K. Sinha · P.B. Chakrabarty · H. Kumar 1

A PPV-Based Prediction Model to Construct Damage Envelop for Crater Blasts

S. Behera · K. Dey 13

A Practical Decision Tool to Evaluate and Rank Potential Solutions for Expected Downhole Drilling Problems During the Well-planning Phase

A. Elmgerbi · B. Les · R. Ashena · T. Atkin 25

AI-Based Design of Hybrid Ionic Polymer–Metal Composite with CNT and Graphene

K.S.K. Chaitanya · S. Datta 37

An OEE-Based Approach to Identify Impact of Vulnerable Sub-Systems on the Continuity of Coal Mining Operation

S. Banerjee · N.C. Dey 45

Application of Bioleaching to Recover Value-Added Product from partially Laterised Khondalite Rocks: A Bauxite Mining Waste

R. Swain · S. Routray · R.N. Mohapatro · B. Varsha · P. Pattnaik 57

Application of Response Surface Methodology for Effective Recovery of Indian Coking Coal Fines Through Froth Flotation Technique

G.V.S. Sarma · A.K. Sanjay · K.S. Chandra · G.M.J. Raju · K.V. Ramesh · S. Chaudari · T.G. Charan 63

Assessment of Mechanical and Tribological Characteristics of A356 Reinforced with x wt% CaB_6 Composites

K. Kaviyaran · R. Soundararajan · A. Raj · S.A. Kannan · P. Ayyankalai 75

Assessing the Tribological Behaviour of Stir Casted AA 6063 with x wt% ZrSiO_4 and 6wt% TiB_2 Hybrid Composites

K. Kaviyaran · R. Soundararajan · R.R. Roger · S. Rudresh · R.S. Ismail · V.S. Prasanth 85

Characterization of Fracture Pattern of Indian Coal Measure Rock Under Uniaxial Compression Stress by Statistical Analysis of Fractal Dimension of the Microcrack Orientation

S. Chakraborty · R. Bisai · S.K. Palaniappan · S.K. Pal 95

Characterization of SG Iron by Ultrasonic Techniques

S.B. Rayjadhav · S.A. Kamble · V.D. Shinde 107

Die Life in Aluminium High-Pressure Die Casting Industries

M. Bhaskar · G. Anand · T. Nalluswamy · P. Suresh 117

Effect of Automation on the Heating of Waste Sand in Reclamation Process Using Arduino Microcontroller

U.A. Patil · S.B. Rayjadhav · V.D. Shinde 125

Electrical Conductivity Mechanism Study of Nd-Doped YCrO_3 Nanoparticles

R. Sinha · S. Halder 133

Electrochemical Properties of Heat-Treated Al Alloy A6061-T6 in 0.5 M H_2SO_4 Solution

T.O. Olugbade · O.O. Omoniyi · B.O. Omiyale 141

Energy Dissipation Behaviour of Bamboo Leaf Ash reinforced Aluminium Metal Matrix Composites

S.E. Nitla · B. Vinod · R. Angajala · P. Danaiah · S.J. Hanumanthu 149

Enhanced Electrocaloric Effect in Lead Zirconate Titanate Ceramic Wafer

A.K. Singh · P.S. Mondal 157

Experimental Investigations on Microstructure and Mechanical Properties of Retrogression and Reaging (RRA)-Treated AA7075 (Al-Zn-Mg) Alloy

T.P. Tejasvi · H.M. Somashekar · V. Ranjith 161

Experimental Study on Electric Conductive Pavement Brick Made from Steel Slag Quenching with Wind

J. Peng 173

Fabrication of Ti-6Al-4V Porous Scaffolds Using Selective Laser Melting (SLM) and Mechanical Compression Test for Biomedical Applications

P. Mondal · A. Das · A. Mondal · A.R. Chowdhury · A. Karmakar 181

Impact of Hot Rolling on Mechanical Characteristics of AA7075/TiB₂/Graphite Hybrid Composites

S.S. Ahmed · H.N. Girisha · R. Keshavamurthy 191

Influence of Graphene Addition on Microstructure and Mechanical Properties of Homogenized Al4032-Graphene Composites Processed Through ECAP

R.S. Krishnarao · V. Veeranna · A.G. Krishna 203

Investigating the Unique Thermal properties of Thassos marble

H.H. Khwayyir · D.M. Hachim · A.M. Aboodi · K.J. Alwan 217

Mechanical and Microstructural Behavior of Similar and Dissimilar AA6082-T6 and AA7050-T7 Friction Stir Welded Joints

A. Singh · V. Upadhyay 225

Microstructure and Nanoindentation response of Si₃N₄-Reinforced Magnesium-based Composite Synthesized by Powder Metallurgy Route

A. Balikai · H. Adarsha · R. Keshavamurthy 235

Multi-Response Optimization of Al/GrCp10 MMC Performance in WEDM Using Integrated TOPSIS-ANFIS Approach

M. Phate · S. Toney · V. Phate · V. Tatwawadi 249

Multi-response Optimization of Turning Parameters for Cryogenically Treated and Tempered WC-Co Inserts

B. Karnan · A. Kuppusamy · T.P. Latchoumi · A. Banerjee · A. Sinha · A. Biswas · A.K. Subramanian 263

Parametric Effect on Tribological Performance of Plasma-Sprayed Composite Coating on Bearing Steel

K. Mohammed Ibrahim · S.S. Havaldar · A. Hiriyanaiyah · R. Keshavamurthy 275

Physicomechanical Properties of Bio-based Sawdust-Cow Horn-Coconut Husk Particleboards

O.T. Ojo · T.O. Olugbade 287

Physico-Mechanical Characteristics of Vindhyan Sandstone, India

V. Chaudhary · A. Srivastav · V.H.R. Pandey · A. Kainthola · S.K. Tiwari · S.B. Dwivedi · T.N. Singh 295

Prediction and Analysis of Mechanical Properties of Low Carbon Steels Using Machine Learning

A. Choudhury 303

Resistance Spot Welding of Aluminum 6063 Alloy for Aerospace Application: Improvement of Microstructural and Mechanical Properties

S.K. Sharma · P. Patel · M. Chandra · A.K. Rajak · C. Sharma 311

Study of CCLW, Alumina and the Mixture of Alumina- and CCLW-Reinforced Aluminum-Based Composite Material with and Without Mechanical Alloying

S.P. Dwivedi · M. Maurya · S. Sharma 319

Study the effect of introducing 6061 Al alloy chip on the microstructure and properties of the 6061 wrought Al alloy prepared by gravity die-cast

M. Dixit · M. Agarwal · R. Srivastava · D.P. Singh 333

Study of Mechanical Properties of SiC and Gr Reinforced Al7075 Powder Metallurgy Composites and Analysis of Results using ANOVA

T.S. Manjunath · Seenappa · G.B.V. Kumar · M.V.P. Kumar · M. Rudresh 341

The Practical Expression of Comprehensive Materials in the Process of Painting Art Creation

H. Geng 349

CASE STUDIES

A Brief Discussion on the Influencing Factors and Conditions on Tribometry using a Pin-on-Disc Tribometer

K.S. Mahesh Lohith 355

Challenges Faced During the Implementation of Safety Management Plan (SMP) in Indian Underground Hard Rock Mines: A Field-Based Approach

F. Sarkar 363

Investigation for Safety of Final Quarry Bench During Mine Closure Stage: A Case Study

A. Golder · I. Roy 375

REVIEW PAPER

Wear Performance of UHMWPE and PCU Artificial Disc Materials

J. Daniel Glad Stephen · M. Prakash · N.K. Das · S. Shukla 383

Further articles can be found at link.springer.com

Instructions for Authors for *J. Inst. Eng. India Ser. D* are available at <http://www.springer.com/40033>