

Table of Contents

Preface

Chapter 1: Properties and Processing Technologies of Metal Materials

Anomalous Temperature Dependences of Kinematic Viscosity in a Multicomponent Metal Melts	
V.S. Tsepelev, Y.N. Starodubtsev and Y.A. Kochetkova	3
Electrochemical Fabrication of Porous Interconnected Copper Foam	
M.D.L. Balela, R.E. Masirag, F.O. Pacariem Jr. and J.M.D. Taguinod	9
Compressive Behavior of ME20M Magnesium Alloy at Low Temperatures	
J. Wang, Y. Wang and Z.R. Li	15
Analysis of Multiple Indicators of Ion Nitrided Layers of BH11 Steel	
N.T. Tontchev, A.P. Zumbilev, E.H. Yankov and I.A. Zumbilev	21
Peculiarities of Structure and Physical-Mechanical Properties of High-Strength Cr-Mo Pipe Steel Applicative Mainly in a Sour Environment	
E.A. Putilova, K.D. Kryucheva and S.M. Zadvorkin	29
Microstructure and Mechanical Properties Change with Cold Rolling of New Ti-13Nb-1.5Ta-3Mo Alloy	
A. Otobil, M. El-Hofy and M.A.H. Gepreel	35
Study of the Diffusible Hydrogen Content Affected from the Welding Electrode Humidity	
A. Areerak, R. Kesvarakul, W. Chaysuwan, K. Limpadapun and J. Sukmanee	43
Investigation of Single Layer and Bilayer of Plasma Transferred Arc (PTA) Coatings of Fe-Cr-V Powder	
S. Saifon, U.A. Tharanon and T. Karuna	49

Chapter 2: Electrotechnical Materials

Electrical Breakdown Voltage of Palm Oil and Nano Graphene Filler in Nanofluids Application on Transformer Insulating Oil	
K. Wajanasoonthon and A. Suksri	59
Development of the Structural, Optical, and Electrical Properties of PEDOT:PSS Conducting Polymer Thin Film for Energy Applications	
S. Aboulhadeed, M. Ghali and M.M. Ayad	65
Using the Design of Experiment Method to Develop an Energy Loss Model for Non-Oriented Electrical Steel Alloys	
V. Paltanea, V. Păltănea, H. Gavrilă and I.V. Nemoianu	71

Chapter 3: Composites, Polymers and Ceramics

Mechanical Properties of Hot-Pressed B₄C-TiB₂ Composites Synthesized from B₄C-TiO₂ and B₄C-TiC	
S.M. Zhao and L.R. Zhao	81
Investigation of Mechanical Behavior of Layered Metal-Rubber Composites Based on Steel and Aluminum Alloy	
S. Kuteneva, S. Gladkovsky, P. Nedzvetsky and V. Veselova	87
Effect of Vulcanization Processes on Properties of Natural Rubber/Cellulose Composites	
Y. Poonpipat, T. Boonmalert, P. Prapainainar and P. Dittanet	95
A Study of an Effect on Moisture from 3D Printer Filament Drying Processes	
K. Limpadapun and J. Sukmanee	101
An Improvement on Tracking Resistance of Silicone Rubber Filled with Micro-Wollastonite/Gehlenite Synthesized by Solid-State Reaction	
P. Khaigunha and T. Wongwuttanasatian	107

Effects of Silver Doping in the Structural and Optical Properties of Hematite (α-Fe₂O₃) Synthesized via Chemical Precipitation Method A.A. Tan, A.C.T. Lacuesta, M.B.Z. Gili and R.B.M. Cervera	113
---	-----

Chapter 4: Biochemical Engineering

Assessment of Shellac and Lemongrass Oil Blend as Edible Coating to Prolong Shelf Life of Pili Nut (<i>Canarium ovatum</i>) A.P.O. De Jesus, M.P.S. Rivarez, R.M.L. Roxas-Villanueva and M.U. Herrera	121
Effects of Influent Concentration and Flow Rate on the Sorption of Diesel Molecules on Kapok Fibers at Dynamic Conditions M.U. Herrera, R.D. Manalo, M.C. Maguyon-Detras and M.D.L. Balela	127

Chapter 5: Building Materials

Evaluation of Carbon Nanotubes Asphalt Modification Using the Superpave Criteria M.A. Khasawneh, K. Ghuzlan and N. Bani Melhem	135
How Efficient are LC3 and GGBFS-Contained Mortar Mixtures Submerged into Na₂SO₄ Solution against External Sulfate Attack at an early Age? I. Orynbassarov, C.S. Shon, J.R. Kim, U. Bektimirova and A. Tugelbayev	145
Experimental Study to Investigate Dune Sand Improvement by Adding Fine Waste Materials M.U. Qureshi, G. Al Kindi and M.S. Alsaidi	153
Complete Experimental Investigation for Short Polypropylene Fiber Reinforced Cement Mortars N.D. Nikoloutsopoulos, Z.G. Pandermarakis, A. Papadioti and P. Douvis	161