

Table of Contents

Preface

Chapter 1: Brazing Processes

Sustainability of Microwelding through Direct and Indirect Heating C.D. Ghelsingher, A.I. Biholar, R.C. Marin, A.A. Midan, A.D. Savu and S.V. Savu	3
Microstructural Aspects on Brazing Stainless Steels for High Temperature Applications B. Radu, C. Opri, C. Codrean, I.M. Anghel and I. Duma	9

Chapter 2: Corrosion Protection

Mechanical and Structural Investigation of Zn-MnO₂ Coating on Mildsteel A.O. Derek, O.S.I. Fayomi and J.O. Atiba	21
Predictive Modeling and Adsorption Behavior, Kinetics, and Thermodynamic Studies of <i>Anthocleista grandiflora</i> Leaf Extract for Corrosion Inhibition of Carbon Steel in Seawater S.O. Okuma, E.O. Ogagavwodia, V.E. Ajokperinovo and M. Obaseki	33

Chapter 3: Catalysts and Catalytic Processes

Conversion Single Reagent of n-Propanol to 1,1-Dipropoxypropane Using Cr/Activated Carbon Catalyst I.I. Falah, K. Wijaya, M.F. Vebryana and A.J. Saviola	55
Oxidative Desulfurization of Dibenzothiophene Using Catalyst of NiO Impregnated on Magnetic Silica Sand from Parangtritis Beach W. Trisunaryanti, H.F. Hidayat, M.F. Pradipta and M.S. Ibrahim	63
An Effective Synthesis of Phosphated Silica (PO₄/SiO₂) Catalyst and its Performance for Converting Ethanol into Diethyl Ether (DEE) R. Mahmudah, A.J. Saviola, S. Sudiono, N. Prasetyo and K. Wijaya	77
Nickel Oxide-Impregnated Phosphated Silica Catalyst: Synthesis and Application for Ethanol Dehydration into Diethyl Ether (DEE) M.M. Fatwa, A.J. Saviola, M.F. Pradipta, R.A. Fitria, N. Prasetyo and K. Wijaya	87
Temperature Distribution in a Two-Scale Porous Structure of a Catalyst Made of Spherical Particles A. Cheilytko and D. Brust	99

Chapter 4: Computational Methods in Materials Science

Impact of Electric Field and Biaxial Strain on the Structural, Phonon, and Optical Features of Bulk and Monolayer Potassium Nitride J.M.K. Alzyadi and M.M. Jaafar	121
Thickness and Doping Density Influence of a High-Voltage Inorganic Perovskite Solar Cell: A SCAPS 1-D Simulation Study F.E. Guerra Vega, H. Juárez, J.A. Alvarado, C. Bueno and R. Pérez-Cuapio	137
Same same but Different - Definition and Explicit Notation of an Orientation in MTEX vs. Quasi-Standard H. Schaeben	151