

Table of Contents

Preface

Chapter 1: Steel and Alloys

Effect of Varying Beryllium Addition on Microstructure, and Corrosion Behaviors of Cu-Zn-Al Shape Memory Alloys N.M. Dawood and A.M. Salim	3
The Effect of Heat Treatment on Wear Properties of Ni-B-CNT Electroless Coating with Different Carbon Nanotube Concentration on AISI 4340 Steel A.M.H. Wais and A.R. Abid Ali	11
Effect of Si Content on Microstructure and Mechanical Behavior of Porous Ti-22 at% Nb Shape Memory Alloys for Biomedical Applications N.M. Dawood, S.A. Jasim and Z. Hussien Khalaf	23

Chapter 2: Chemical Synthesis and Treatment of Materials

Microstructure Investigation of Activated Carbon Prepared by Carbon Dioxide-Physical Activation A.M. Jasim and N. Abbas Ali	37
Preparation and Characterization of Nano Membrane for Fuel Cell M.N. Mahdi, M.K. Ibrahim and H.J. Mohammed	51

Chapter 3: Waste Conversion Technologies

Investigating the Performance of Single Chamber Microbial Fuel Cell (SCMFC) as Sustainable- Innovative Technique for Electricity Generation and Wastewater Treatment M.Y. Adnan and A. Hassoon Ali	59
Estimation of Capacity of Municipal Solid Waste - Based Power Generation Plant in Iraq A.R. Othman, T.L. Saleem, S.S. Salman and Y.A. Kahtan	71

Chapter 4: Thermal Engineering

The Impact of Gas-Liquid Dispersed Flow on Heat Exchanger Performance with Improvement Using CuO Nanofluid M.M. Hathal, B.O. Hasan and H.S. Majdi	83
---	----