

Table of Contents

Preface

Chapter 1: Materials and Technologies in Oil Recovery

Investigation of Oil and Water Surface Interactions in Nanoparticles Present in Crude Oil S.N. Jamal, M.N.H. Nazim, A. Norsalun, M.Z. Mohamad Noor and D.D. Kwesi Wayo	3
Mechanism and Performance Analysis of Hybrid Nano Fluid for Enhanced Oil Recovery L.C. Manalo, A.S. Muhsan, N.A. Md. Akhir, J.D. Reyes Santos and M.J. Ledesma Cabiguen	13
Evaluation of Nanoparticle Adsorption Energy in a Silicon Dioxide–Stabilized Surfactant Foam System W.M.S. bin Mat Latif	31
Dehydration of Crude Oil Emulsion Using Nanoparticles as Demulsifier: A Review M.J. Cabiguen, I.M. Saaid, J.D. Santos and L. Manalo	45
Performance of Plant-Based Biopolymers as Drag Reducing Additives A.B. Osman, F.W.M. Ling, E. Suali, A. Degullacion, B. Berul and A.H.H. Teo	63
Bioremediation of Crude Oil Emulsion in Seawater Using <i>Chlorella</i> sp. I.H. Yunos, M.S. Mohd Syukri, M.A. Mohd Ibrahim and N. Abdullah	81

Chapter 2: Drilling Fluids

Effect of Saponin, Gemini Surfactant, and Nanoparticle Toward the Water-Based Mud (WBM) Drilling Fluid Properties N. Ridzuan, P. Ravinchandran and A. Agi	93
Synergistic Effects of Polyethyleneimine and Potassium Citrate on Drilling Fluid Properties S.Q.A. Mahat, M.A.H. Mohd Sukeri, W.M.A.H. Wan Mohd Nor, C. Umunnawuike, A.A. Aja and I. Mohd Saaid	107
Synthesis of Tannin-Lignin as Thermal Resistance Thinning Agent for Water-Based Drilling Mud P.N.S.H. Abdul Rahman, M.A. Mohammad, N.F.N. Mohd Ruslan, N. Ismail, N. Ridzuan and N.H. Hamidi	125

Chapter 3: Materials for Sand Control

Optimizing Fines Mitigation: Evaluating the Effect of Clay on Sand Agglomeration for Enhanced Sand Control D. Kamat and I.M. Saaid	135
Exploratory Analysis of a Green Resin with Carbon Nanotubes for Chemical Sand Consolidation J.D. Santos, I.M. Saaid, M.J.L. Cabiguen and L.C. Manalo	147

Chapter 4: Corrosion Protection

Biosynthesis of <i>Moringa oleifera</i> (Malunggay) Silver Nanoparticles as a Corrosion Inhibitor for A36 Mild Steel T.A.R. Gallamos, D.F. Fajardo, M.C. Gidayawan, E.B. Carpio, E.E. Terciano, J.D. Binay and R.V.C. Rubi	163
Properties of Epoxy Coatings Electrodeposited from Cationic Epoxy Suspensions Prepared by Different Secondary Amine's Volumes N.S. Mohd Halim, N. Romzei, K.T. Lau, K.T.L. Yong, U.A.A. Azlan and A.H. You	179

Chapter 5: Fuel Cell, Carbon Capture and Storage

Compatibility of NiO-SDC and NiO-Fe Anodes with Samarium-Doped Ceria Carbonate (SDCC) Electrolyte Intermediate-Temperature Solid Oxide Fuel Cells M.L. Siong, M. Andanastuti, S.M. Rao and A.S.A. Muhammed	191
Role of Lorenz Coefficients in Carbon Capture and Storage Dynamics: A Case Study of the Air Benakat Formation R. Ramadhan, M. Abdurrahman, A. Arsal and V. Napitupulu	205
Assessment of Caprock Integrity Utilising Rock Failure Prediction Methodology for Carbon Capture and Storage (CCS): A Review N.N.S. Suhaidi, F.F. Kaylyn and N. Ismail	215

Chapter 6: Engineering Management

A Mini Review on Predicting Buried Pipelines Failures Using Machine Learning Methods (ANN and Hybrid) A.B. Hafeza, Z. Zainal and H.J. Tham	229
Innovative Methods for Energy Savings in Distillation Processes: From Sequence Analysis to Energy Integration A.K. Bibi Norsahilla, S. Sarjit Ronna, Y.A. Nurhazwani, I. Norazana and A.H. Mohd Kamaruddin	243
Transforming the Oil and Gas Industry: Leveraging Business Intelligence for Efficiency Optimization A.A. Kadyrgulova	257