

Table of Contents

Preface

A Lifecycle Sustainability Assessment of CO₂ Emissions, Energy Consumption and Social Aspects of Methylic and Ethylic Biodiesel Using Principal Component Analysis	
S.F. Interlenghi, J.L. de Medeiros and O.d.Q.F. Araújo	1
CO₂ Chemical Conversion Using Catalytic Systems Based on Titanate Nanotubes	
W. Formentin Monteiro, M. Oliveira Vieira, C.M. Scheid, M.O. de Souza, S. Einloft and R. Ligabue	13
Ionic Liquid [Bmim][NTf₂] as Solvent for CO₂ Removal in Offshore Processing of Natural Gas	
L.C. Barbosa, O.d.Q.F. Araújo and J.L. de Medeiros	21
Technical Evaluation of the Applicability of Gas-Liquid Membrane Contactors for CO₂ Removal from CO₂ Rich Natural Gas Streams in Offshore Rigs	
G.P. da Cunha, J.L. de Medeiros and O.d.Q.F. Araújo	29
Achieving Negative Emissions: Integration of Sugarcane Crop, Ethanol Biorefinery, Post-Combustion Capture and CO₂ Pipeline for Enhanced Oil Recovery	
H.B. Carminati, R.d.F.D. Milão, O.d.Q.F. Araújo and J.L. de Medeiros	39
Integration of Post-Combustion Capture and Rejection Plant to Power Generation Cycle Using CO₂-Rich Natural Gas in Offshore Oil and Gas Installation	
R.d.P.F. Silva, J.L. de Medeiros and O.d.Q.F. Araújo	49
CO₂ Emission and Energy Assessments of a Novel Pre-Purification Unit for Cryogenic Air Separation Using Supersonic Separator	
G.V. Brigagão, L.d.O. Arinelli, J.L. de Medeiros and O.d.Q.F. Araújo	59
Porosity Alteration of Carbonates by CO₂-Enriched Brine Injection	
E.F.d.M. Rocha, O. Vidal, E.T. Koroishi, J.A.V. Vargas and L.F.L. de Oliveira	69
CO₂ Rich Natural Gas Processing: Technical, Power Consumption and Emission Comparisons of Conventional and Supersonic Technologies	
L.d.O. Arinelli, A.M. Teixeira, J.L. de Medeiros and O.d.Q.F. Araújo	79
Water and Power Consumption, Ethanol Production and CO₂ Emissions: High-Scale Sugarcane-Based Biorefinery Toward Neutrality in Carbon	
R.d.F. Dias, H.B. Carminati, O.d.Q.F. Araújo and J.L. de Medeiros	87
Offshore Natural Gas Conditioning and Recovery of Methanol as Hydrate Inhibitor with Supersonic Separators: Increasing Energy Efficiency with Lower CO₂ Emissions	
A.M. Teixeira, L.d.O. Arinelli, J.L. de Medeiros and O.d.Q.F. Araújo	97
Porosity and Permeability Alteration of Carbonates by CO₂-Enriched Brine Injection	
D.M.H. Castro, J.A.V. Vargas, E.T. Koroishi, L.F.L. de Oliveira and O.V. Trevisan	107
Feasibility Study of CO₂ Mitigation with Methanol Production through Hydrogenation and Bi-Reforming of Natural Gas	
I.L. Wiesberg, J.L. de Medeiros and O.d.Q.F. Araújo	117
A more Sustainable Polyurethane Membrane for Gas Separation at Room Temperature and Low Pressure	
G.H.G. Santos, M.A. Rodrigues, H.C. Ferraz, L.C. Moura and J.L. de Miranda	125
Evaluation of Polymeric Coatings in CO₂ Containing Environment	
R.Z.C. Demoner, A.R.P. Castro, A. Barros, J.P. Quintela, J.R. de Oliveira and I.S. Bott	133