

GPC Publications 2018

4.3 Publications (2019)

4.3.1 Patent Applications 2019

GPC researchers have filed or granted four QU patents this year.

1. Ahmed M, Hussein IA, Saad MA, Onawole A. Electrochemical Dissolution of Pyrite Using H₂S-Free Formulation. US Patent; 2019.
2. Ahmed M, Hussein IA, Onawole A, Saad MA. Iron sulfide scale removal from oil and gas well using green formulation. US Patent; 2019.
3. Al-Risheq D, Nasser MS, Qiblawey H, Benamor A, Hussein IA. Destabilization and Separation of High Stable Colloidal Dispersions Using Choline Chloride Based Natural Deep Eutectic Solvent. US Patent; 2019.
4. Hamza A, Hussein IA, Shamlooh M, Nasser MS, Magzoub M, Salehi S. Development of a Novel Reinforced Polymeric Gel Formulation for High Temperature Wellbore Strengthening Applications using Functionalized Silica. US Patent #62/880,845; 2019.

4.3.2 Books and Book Chapters 2019

1. Hadi, Bashar, and Muftah H El-Naas. 2019. "Biosorption of Heavy Metals: Potential and Applications of Yeast Cells for Cadmium Removal." In *Environmental Contaminants: Ecological Implications and Management*, ed. Ram Naresh Bharagava. Singapore: Springer Singapore, 237–71. https://doi.org/10.1007/978-981-13-7904-8_11.
2. Al-Khalid, T., R. Surkatti, M. H. El-Naas, "Organic Contaminants in Industrial Wastewater: Prospects of Waste Management by Integrated Approaches", Chapter 10 in *Combined Application of Physico-Chemical & Microbiological Processed for Industrial Effluent Treatment Plant*, Editors: Maulin Shah and Aditi Banerjee, Springer (2019), In Press.

4.3.3 Journal Publications 2019

1. Abdalla, Mays, Mustafa Nasser, Ahmad Kayvani Fard, Hazim Qiblawey, Abdelbaki Benamor, and Simon Judd. 2019. "Impact of Combined Oil-in-Water Emulsions and Particulate Suspensions on Ceramic Membrane Fouling and Permeability Recovery." *Separation and Purification Technology* 212:215–22.
2. Ahmed, Musa E. M., Mohammed A. Saad, Ibelwaleed A. Hussein, Abdulmujeeb T. Onawole, and Mohamed Mahmoud. 2019. "Pyrite Scale Removal Using Green Formulations for Oil and Gas Applications: Reaction Kinetics." *Energy & Fuels* 33(5):4499–4505.
3. Ali, Sardar, Mahmoud M. Khader, Mohammed J. Almarri, and Ahmed G. Abdelmoneim. 2019. "Ni-Based Nano-Catalysts for the Dry Reforming of Methane." *Catalysis Today*.
4. Aslam, Zaheer, Ibelwaleed A. Hussein, Reyad A. Shawabkeh, Mohammad Anwar Parvez, Waqar Ahmad, and Ihsanullah. 2019. "Adsorption Kinetics and Modeling of H₂S by Treated Waste Oil Fly Ash." *Journal of the Air & Waste Management Association* 69(2):246–57.
5. Awad, Abdelrahman M., Rem Jalab, Joel Minier-Matar, Samer Adham, Mustafa S. Nasser, and S. J. Judd. 2019. "The Status of Forward Osmosis Technology Implementation." *Desalination* 461:10–21.
6. Awad, Abdelrahman M., Shifa M. R. Shaikh, Rem Jalab, Mona H. Gulied, Mustafa S. Nasser,

- Abdelbaki Benamor, and Samer Adham. 2019. "Adsorption of Organic Pollutants by Natural and Modified Clays: A Comprehensive Review." *Separation and Purification Technology* 228:115719.
7. Bouabidi, Zineb B., Muftah H. El-Naas, and Zhen Zhang. 2019. "Immobilization of Microbial Cells for the Biotreatment of Wastewater: A Review." *Environmental Chemistry Letters* 17(1):241–57.
 8. Carchini, Giuliano, Ibelwaleed Hussein, Mohammed J. Al-Marri, Reyad Shawabkeh, Mohamed Mahmoud, and Santiago Aparicio. 2019. "A Theoretical Study of Gas Adsorption on Calcite for CO₂ Enhanced Natural Gas Recovery." *Applied Surface Science* 144575.
 9. Elhamarnah, Yousef A., Mustafa Nasser, Hazim Qiblawey, Abdelbaki Benamor, Mert Atilhan, and Santiago Aparicio. 2019. "A Comprehensive Review on the Rheological Behavior of Imidazolium Based Ionic Liquids and Natural Deep Eutectic Solvents." *Journal of Molecular Liquids* 277:932–58.
 10. Elhamarnah, Yousef, Hazim Qiblawey, Mustafa S. Nasser, and Abdelbaki Benamor. 2019. "Thermo-Rheological Characterization of Malic Acid Based Natural Deep Eutectic Solvents." *Science of The Total Environment* 134848.
 11. Hamza, Ahmed, Mohamed Shamlooh, Ibelwaleed A. Hussein, Mustafa Nasser, and Saeed Salehi. 2019. "Polymeric Formulations Used for Loss Circulation Materials and Wellbore Strengthening Applications in Oil and Gas Wells: A Review." *Journal of Petroleum Science and Engineering* 180:197–214.
 12. Al Hawli, Basma, Abdelbaki Benamor, and Alaa A. Hawari. 2019. "A Hybrid Electro-Coagulation/Forward Osmosis System for Treatment of Produced Water." *Chemical Engineering and Processing - Process Intensification* 143:107621.
 13. Ibrahim, Mohamed, Muftah El-Naas, Abdelbaki Benamor, Saad Al-Sobhi, and Zhen Zhang. 2019. "Carbon Mineralization by Reaction with Steel-Making Waste: A Review." *Processes* 7(2):115.
 14. Ibrahim, Mohamed H., Muftah H. El-Naas, Ron Zevenhoven, and Saad A. Al-Sobhi. 2019. "Enhanced CO₂ Capture through Reaction with Steel-Making Dust in High Salinity Water." *International Journal of Greenhouse Gas Control* 91:102819.
 15. Ibrahim, Mohamed H., D. T. Moussa, Muftah El-Naas, and Mustafa S. Nasser. 2019. "A Perforated Electrode Design for Passivation Reduction During the Electrochemical Treatment of Produced Water." *Journal of Water Process Engineering*.
 16. Jalab, Rem, Abdelrahman M. Awad, Mustafa S. Nasser, Joel Minier-Matar, Samer Adham, and Simon J. Judd. 2019. "An Empirical Determination of the Whole-Life Cost of FO-Based Open-Loop Wastewater Reclamation Technologies." *Water Research* 163:114879.
 17. Kabalan, Lara, Moustafa M. Zagho, Mohammed J. Al-Marri, and Mahmoud M. Khader. 2019. "Experimental and Theoretical Studies on the Mechanical and Structural Changes Imposed by the Variation of Clay Loading on Poly(Vinyl Alcohol)/Cloisite® 93A Nanocomposites." *Journal of Vinyl and Additive Technology* 25(2):172–81.
 18. Kamal, Muhammad Shahzad, Mohamed Mahmoud, Mohammed Hanfi, Salaheldin Elkatatny, and Ibelwaleed Hussein. 2019. "Clay Minerals Damage Quantification in Sandstone Rocks Using Core Flooding and NMR." *Journal of Petroleum Exploration and Production Technology* 9(1):593–603.
 19. Al Ketife, Ahmed M. D., F. Almomani, Muftah EL-Naas, and Simon Judd. 2019. "A Technoeconomic Assessment of Microalgal Culture Technology Implementation for Combined Wastewater Treatment and CO₂ Mitigation in the Arabian Gulf." *Process Safety and Environmental Protection* 127:90–102.
 20. Khraisheh, M., N. Dawas, M. S. Nasser, M. J. Al-Marri, Muataz A. Hussien, S. Adham, and G. McKay. 2019. "Osmotic Pressure Estimation Using the Pitzer Equation for Forward Osmosis Modelling." *Environmental Technology* 1–13.

21. Magzoub, Musaab I., Ibelwaleed A. Hussein, Mustafa S. Nasser, Mohamed Mahmoud, Abdullah S. Sultan, and Abdelbaki Benamor. 2019. "An Investigation of the Swelling Kinetics of Bentonite Systems Using Particle Size Analysis." *Journal of Dispersion Science and Technology* 1–11.
22. Magzoub, Musaab I, Saeed Salehi, Ibelwaleed A. Hussein, and Mustafa S. Nasser. 2019. "Loss Circulation in Drilling and Well Construction: The Significance of Applications of Crosslinked Polymers in Wellbore Strengthening: A Review." *Journal of Petroleum Science and Engineering*.
23. Magzoub, Musaab, Mohamed Mahmoud, Mustafa Nasser, Ibelwaleed Hussein, Salaheldin Elkhatatny, and Abdullah Sultan. 2019. "Thermochemical Upgrading of Calcium Bentonite for Drilling Fluid Applications." *Journal of Energy Resources Technology* 141(4).
24. Mahmoud, Husameldin, Ahmed Hamza, Mustafa S. Nasser, Ibelwaleed A. Hussein, Ramadan Ahmed, and Hamidreza Karami. 2019. "Hole Cleaning and Drilling Fluid Sweeps in Horizontal and Deviated Wells: Comprehensive Review." *Journal of Petroleum Science and Engineering* 106748.
25. Mahmoud, Mohamed, Ibelwaleed Hussein, Giuliano Carchini, Reyad Shawabkeh, Mohammed Eliebid, and Mohammed J. Al-Marri. 2019. "Effect of Rock Mineralogy on Hot-CO₂ Injection for Enhanced Gas Recovery." *Journal of Natural Gas Science and Engineering* 72:103030.
26. Mahmoud, Mohamed, Abdelmjeed Mohamed, Muhammad Shahzad Kamal, Abdullah Sultan, and Ibelwaleed Hussein. 2019. "Upgrading Calcium Bentonite to Sodium Bentonite Using Seawater and Soda Ash." *Energy & Fuels* 33(11):10888–94.
27. Mahmoudi, Ebrahim, Wei Lun Ang, Ching Yin Ng, Law Yong Ng, Abdul Wahab Mohammad, and Abdelbaki Benamor. 2019. "Distinguishing Characteristics and Usability of Graphene Oxide Based on Different Sources of Graphite Feedstock." *Journal of Colloid and Interface Science* 542:429–40.
28. Mahmud, Nafis, Abdelbaki Benamor, Mustafa Nasser, Muftah H. El-Naas, and Paitoon Tontiwachwuthikul. 2019. "Reaction Kinetics of Carbon Dioxide in Aqueous Blends of N-Methyldiethanolamine and L-Arginine Using the Stopped-Flow Technique." *Processes* 7(2):81.
29. Mehmood, Umer, Khalil Harrabi, Ibelwaleed A. Hussein, Nagendiran Shanmugam, A. Mekki, M. Mekki, and M. A. McLachlan. 2019. "A Study on Stability of Active Layer of Polymer Solar Cells: Effect of UV–Visible Light with Different Conditions." *Polymer Bulletin* 76(2):525–37.
30. Mohammad, A. F., M. H. El-Naas, A. H. Al-Marzouqi, M. I. Suleiman, and M. Al Musharfy. 2019. "Optimization of Magnesium Recovery from Reject Brine for Reuse in Desalination Post-Treatment." *Journal of Water Process Engineering* 31:100810.
31. Nwaoha, Chikezie, Paitoon Tontiwachwuthikul, and Abdelbaki Benamor. 2019. "CO₂ Capture from Water-Gas Shift Process Plant: Comparative Bench-Scale Pilot Plant Investigation of MDEA-PZ Blend vs Novel MDEA Activated by 1,5-Diamino-2-Methylpentane." *International Journal of Greenhouse Gas Control* 82:218–28.
32. Onawole, Abdulmujeeb T., Ibelwaleed A. Hussein, Mohammed A. Saad, Mohamed Mahmoud, Musa E. M. Ahmed, and Hassan I. Nimir. 2019. "Effect of PH on Acidic and Basic Chelating Agents Used in the Removal of Iron Sulfide Scales: A Computational Study." *Journal of Petroleum Science and Engineering* 178:649–54.
33. Onawole, Abdulmujeeb T., Ibelwaleed A. Hussein, Abdullah Sultan, Safwat Abdel-Azeim, Mohamed Mahmoud, and Mohammed A. Saad. 2019. "Molecular and Electronic Structure Elucidation of Fe 2+ /Fe 3+ Complexed Chelators Used in Iron Sulphide Scale Removal in Oil and Gas Wells." *The Canadian Journal of Chemical Engineering* 97(7):2021–27.
34. Osman, Miada A., Muftah El-Naas, and Sulaiman Al-Zuhair. 2019. "Electrocoagulation Treatment of Reject Brine Effluent from Solvay Process." *Desalination And Water Treatment* 163:325–35.
35. Shamlooh, Mohamed, Ahmed Hamza, Ibelwaleed A. Hussein, Mustafa S. Nasser, Musaab Magzoub, and Saeed Salehi. 2019. "Investigation of the Rheological Properties of Nanosilica-

Reinforced Polyacrylamide/Polyethyleneimine Gels for Wellbore Strengthening at High Reservoir Temperatures.” *Energy & Fuels* 33(7):6829–36.

36. Talkhan, Ahmed Gomaa, A. Benamor, Mustafa S. Nasser, Hazim Qiblawey, S. A. El-Tayeb, and S. M. El-Marsafy. 2019. “Corrosion Study of Carbon Steel in CO₂ Loaded Solution of N-Methyldiethanolamine and L-Arginine Mixtures.” *Journal of Electroanalytical Chemistry* 837:10–21.
37. Yousefi, Shiva A., Mustafa S. Nasser, Ibelwaleed A. Hussein, Abdelbaki Benamor, and Muftah H. El-Naas. 2020. “Influence of Polyelectrolyte Structure and Type on the Degree of Flocculation and Rheological Behavior of Industrial MBR Sludge.” *Separation and Purification Technology* 233:116001.
38. Yousefi, Shiva A., Mustafa S. Nasser, Ibelwaleed A. Hussein, and Simon Judd. 2019. “Influence of Polyelectrolyte Architecture on the Electrokinetics and Dewaterability of Industrial Membrane Bioreactor Activated Sludge.” *Journal of Environmental Management* 233:410–16.
39. Zaidi, Syed, Farid Fadhilah, Haleema Saleem, Alaa Hawari, and Abdelbaki Benamor. 2019. “Organically Modified Nanoclay Filled Thin-Film Nanocomposite Membranes for Reverse Osmosis Application.” *Materials* 12(22):3803.

4.3.4 Conference Publications 2019

1. Ahmed, Musa, Abdulmujeeb Onawole, Ibelwaleed Hussien, Mohammed Saad, Mohammed Mahmoud, and Hassan Nimir. 2019. “Effect of PH on Dissolution of Iron Sulfide Scales Using THPS.” in *SPE International Conference on Oilfield Chemistry*. Society of Petroleum Engineers.
2. Benamor, A., M. Nasser, M. H. El-Naas, and H. Qiblawey. 2019. “Metal-Oxide Nanotubes Functional Material Tailored for Membrane Water/Wastewater Treatment.” P. 012048 in *IOP Conference Series: Materials Science and Engineering*. Vol. 634.
3. Carchini, Giuliano, Ibelwaleed A. Hussein, Mohammed J. Al-Marri, Reyad Shawabkeh, and Santiago Aparicio. 2019. “A Theoretical Study of Gas Adsorption on Calcite for CO₂ Enhanced Natural Gas Recovery.” in *Third EAGE WIPIC Workshop: Reservoir Management in Carbonates*. EAGE.
4. Ibrahim, Mohamed H., Muftah El-Naas, Abdelbaki Benamor, and Saad Al-Sobhi. 2019. “Mineral Carbonation of Steel-Making Waste: A Green Approach.” in *18th Asian Pacific Confederation of Chemical Engineering Congress*.
5. Minier-Matar, Joel, Abdelrahman M. Awad, Mashaal Al-Maas, Rem Jalab, Mustafa S. Nasser, and Samer Adham. 2019. “Osmotic Concentration for Reducing Wastewater Volumes from Gas Processing Facilities in Qatar.” in *International Conference on Sustainable Energy-Water-Environment Nexus in Desert Climate*. Doha, Qatar.
6. Nasser, Mustafa S., Shifa M. R. Shaikh, and Abdelbaki Benamor. 2019. “Effect of Electrolyte Type and Concentration on the Electrokinetic Behaviour of Clay-Polyelectrolyte Dispersions.” ACS.
7. Onawole, Abdulmujeeb, Ibelwaleed A. Hussein, Mohammed Saad, Musa Ahmed, and Santiago Aparicio. 2019. “Application of DFT in Iron Sulfide Scale Removal from Oil and Gas Wells.” in *Third EAGE WIPIC Workshop: Reservoir Management in Carbonates*. Doha: EAGE.
8. Qiblawey, Hazim, Hanumanthaiah Kumar, Mustafa Nasser, Abdelbaki Benamor, and Mohammad Al-Ghouti. 2019. “Development of Novel Thin Film Composite Reverse Osmosis Membranes for Desalination.” P. 020042 in.
9. Shamlooh, Mohamed, Ahmed Hamza, Ibelwaleed A. Hussein, Mustafa S. Nasser, and Saeed Salehi. 2019. “Overview of Polymers for Improved Oil Recovery Treatments.” in *Third EAGE WIPIC Workshop: Reservoir Management in Carbonates*. Doha: EAGE.

10. Surkatti, Riham, Muftah H. El-Naas, Mark C. M. Van Loosdrecht, Fatima Al-Naemi, and Udeogu Onwusogh. 2019. "Improvement of PVA Gel Properties for Cell Immobilization." in *Proceedings of the 5th World Congress on Mechanical, Chemical, and Material Engineering*. Lisbon, Portugal.
11. Talkhan, Ahmed Gomaa, Abdelbaki Benamor, Mustafa S. Nasser, and Muftah H. El-Naas. 2019. "CO₂ Absorption Capacity, Modelling and Its Enthalpy of Absorption in Aqueous Blend of MDEA/Piperazine/Arginine." in *Energy Security And Chemical Engineering Congress 2019*. Penang, Malaysia.
12. Equilibrium Solubility, Modelling and Enthalpy of CO₂ Absorption in Aqueous Blend of Methyldiethanolamine and Arginine at Partial Pressures below 100 kPa, The 26th Regional Symposium on Chemical Engineering (RSCE 2019), 30–31 October 2019 Kuala Lumpur, Malaysia
13. Synthesis and Characterization of Fe₃O₄ Nanoparticles Using Different Experimental Methods, The 26th Regional Symposium on Chemical Engineering (RSCE 2019), 30–31 October 2019 Kuala Lumpur, Malaysia

Source: GPC annual report 2019