List of Publications of Dr. Hafiz Abdul Mannan

PATENT FILED

1. **HA Mannan,** DF Mohshim, H Mukhtar, "A Gas Separation Membrane" Malaysian Patent Application No: PI 2018701698, Submitted on 27/04/2018

BOOK CHAPTERS

1. A Jamil, M Latif, AI Abdulgadir, D Qadir, **HA Mannan**, "Novel CO_2 Separation Membranes" in Sustainable Carbon Capture: Technologies and Applications. (1st ed.) Suleman, H., Fosbøl, P.L., Nasir, R., & Ameen, M. (Eds.). CRC Press. (2022). DOI: https://doi.org/10.1201/9781003162780
2. R Nasir, T Rashid, K Maqsood, D Qadir, DF Mohshim, A Ali, H Suleman, **HA Mannan**, H Mukhtar, A Abdulrahman, "Lignin Nanoparticles and Their Biodegradable Composites" in Green Composites. Materials Horizons: From Nature to Nanomaterials. Thomas S., Balakrishnan P. (Eds) Springer, (2021) pp 295-327; DOI: https://doi.org/10.1007/978-981-15-9643-8_11
3. **HA Mannan**, H Mukhtar, DF Mohshim, R Nasir, MS Shaharun, "Role of Ionic Liquids in Eliminating Interfacial Defects in Mixed Matrix Membranes" in Interfaces in Particle Reinforced Composites, K. L. Goh, A. M.K, R. T. De Silva, and S. Thomas (Eds.): Woodhead Publishing, (2020) pp. 269-309; DOI: https://doi.org/10.1016/B978-0-08-102665-6.00011-X
4. M Zia-ul-Mustafa, **HA Mannan**, H Mukhtar, DF Mohshim, R Nasir, "Application of ionic liquids in gas separation membranes" in Industrial Applications of Green Solvents, Materials Research Foundations, 50 (2019) 320-344; DOI: https://doi.org/10.21741/9781644900239-10
5. R Nasir, **HA Mannan**, D Qadir, H Mukhtar, DF Mohshim, A Abdulrahman, "Modeling in Gas Separation Membranes" in Modeling and Simulation of Membrane Processes, A. Roy, S. Moulik, R. Kamesh and A. Mullick (Eds.): Wiley (2020) pp. 237-256; DOI: https://doi.org/10.1002/9781119536260.ch6

PEER-REVIEWED JOURNAL ARTICLES

1. Qadir, D., Nasir, R., **Mannan, H.A.** et al. Optimization and performance studies of NFDK membrane for ionic separation from aqueous solutions. Chem. Pap. 76, (2022) 1815-1831. DOI: https://doi.org/10.1007/s11696-021-01990-4
2. Ashraf, M.A.; Islam, A.; Butt, M.A.; **Mannan, H.A.**; Khan, R.U.; Kamran, K.; Bashir, S.; Iqbal, J.; Al-Ghamdi, A.A.; Al-Sehemi, A.G. Quaternized Diaminobutane / Poly(vinyl alcohol) Cross-Linked Membranes for Acid Recovery via Diffusion Dialysis. Membranes (2021) 11, 786. DOI: https://doi.org/10.3390/membranes11100786
3. T Naidua, D Qadir, R Nasir, **HA Mannan**, H Mukhtar, K Maqsood, A Ali, A Abdulrahman, "Utilization of moringa oleifera and nanofiltration membrane to treat palm oil mill effluent (POME)" *Materialwissenschaft und Werkstofftechnik-Wiley*, 52, (2021) 346. DOI: https://doi.org/10.1002/mawe.202000084
4. R Nasir, DF Mohshim, **HA Mannan**, D Qadir, H Mukhtar, K Maqsood, A Ali, B Maulianda, A Abdulrahman, AB Mahfouz, "A perspective on ionic liquid- based membranes for CO_2 separation" *Chemical Papers-Springer* 75, (2021) 839-852 DOI: https://doi.org/10.1007/s11696-020-01384-y

5. NA Fauzan, H Mukhtar, R Nasir, DF Mohshim, N Arasu, Z Man, **HA Mannan**, "Composite Amine Mixed Matrix Membranes for High-Pressure CO_2-CH_4 Separation: Synthesis, Characterization and Performance Evaluation" *Royal Society Open Science-Royal Society Publishing*, 7 (2020) 200795; DOI: https://doi.org/10.1098/rsos.200795
6. A Idris, Z Man, A Maulud, A Bustam, **HA Mannan**, I Ahmed, "Investigation on Particle Properties and Extent of Functionalization of Silica Nanoparticles" *Applied Surface Science-Elsevier*, 506 (2020) 144978; DOI: https://doi.org/10.1016/j.apsusc.2019.144978
7. MJGB Mohamed, **HA Mannan,** R Nasir, DF Mohshim, H Mukhtar, A Abdulrahman, A Ahmed, "Composite Mixed Matrix Membranes Incorporating Microporous Carbon Molecular Sieve as Filler in Polyethersulfone for CO_2/CH_4 Separation" *Journal of Applied Polymer Science-Wiley*, 137 (2020) 48476; DOI: https://doi.org/10.1002/app.48476
8. A Idris, Z Man, A Bustam, NE Rabat, F Uddin, **HA Mannan**, "Grindability and Abrasive Behavior of Coal Blends: Analysis and Prediction" *International Journal of Coal Preparation and Utilization-Taylor & Francis*, (2019) [Accepted and Article in Press] DOI: https://doi.org/10.1080/19392699.2019.1694009
9. AS Wiryoatmojo, **HA Mannan,** R Nasir, H Mukhtar, DF Mohshim, A Abdulrahman, Z Man, "Surface Modification Effect of Carbon Molecular Sieve (CMS) on the Morphology and Separation Performance of Mixed Matrix Membranes", *Polymer Testing-Elsevier*, 80 (2019) 106152; DOI: https://doi.org/10.1016/j.polymertesting.2019.106152
10. NA Fauzan, **HA Mannan**, R Nasir, DF Mohshim, H Mukhtar, "Various Techniques for Preparation of Thin-Film Composite Mixed Matrix Membrane for CO_2 Separation" *Chemical Engineering and Technology-Wiley*, 42 (2019) 2608-2620; DOI: https://doi.org/10.1002/ceat.201800520
11. M Zia-ul-Mustafa, H Mukhtar, NAHM Nordin, **HA Mannan**, R Nasir, N Fazil, "Recent Developments and Applications of Ionic Liquids in Gas Separation Membranes" *Chemical Engineering and Technology-Wiley*, (42 (2019) 2580-2593; DOI: https://doi.org/10.1002/ceat.201800519
12. S Ullah, MA Assiri, AG Al- Sehemi, MA Bustam, **HA Mannan**, FA Abdulkareem, A Irfan, S Saqib, "High- temperature CO_2 removal from CH_4 using silica membrane: experimental and neural network modeling" *Greenhouse Gases: Science and Technology-Wiley*, 9 (2019) 1010–1026; DOI: https://doi.org/10.1002/ghg.1916
13. A Idris, Z Man, A Maulud, **HA Mannan**, Alwani Shafie, "Effect of Silane Coupling Agents on Properties and Performance of Polycarbonate/Silica MMMs" *Polymer Testing-Elsevier*, 73 (2019) 159-170; DOI: https://doi.org/10.1016/j.polymertesting.2018.11.013
14. **HA Mannan**, TM Yih, R Nasir, H Muhktar, DF Mohshim, "Fabrication and Characterization of Polyetherimide/Polyvinyl Acetate Polymer Blend Membranes for CO_2/CH_4 Separation" *Polymer Engineering and Science-Wiley*, 59 (2019) E293-E301; DOI: https://doi.org/10.1002/pen.24945
15. **HA Mannan,** DF Mohshim, H Mukhtar, T Murugesan, Z Man, MA Bustam, "Synthesis, characterization, and CO_2 separation performance of polyether sulfone/[EMIM][Tf_2N] ionic liquid-polymeric membranes (ILPMs)" *Journal of Industrial and Engineering Chemistry-Elsevier*, 54 (2017) 98-106; DOI: https://doi.org/10.1016/j.jiec.2017.05.022
16. SGEE Mustafa, **HA Mannan**, R Nasir, DF Mohshim, H Mukhtar, "Synthesis, characterization, and performance evaluation of PES/EDA-functionalized TiO_2 mixed matrix membranes for CO_2/CH_4 separation" *Journal of Applied Polymer Science-Wiley*, 134 (2017) 45356; DOI: https://doi.org/10.1002/app.45346

17. **HA Mannan,** H Mukhtar, T Murugesan, Z Man, MA Bustam, MS Shaharun, MZ Abu Bakar, "Prediction of CO_2 gas permeability behavior of ionic liquid-polymer membranes (ILPM)" *Journal of Applied Polymer Science-Wiley*, 134 (2017) 44761; DOI: https://doi.org/10.1002/app.44761
18. MA Abdullah, H Mukhtar, **HA Mannan**, YY Fong, MS Shaharun, "Polyethersulfone/polyvinyl acetate blend membrane incorporated with TiO_2 nanoparticles for CO_2/CH_4 gas separation" *Malaysian Journal of Fundamental and Applied Sciences-UTM Press*, 13, (2017) 774-777; DOI: https://doi.org/10.11113/mjfas.v13n4.923
19. **HA Mannan,** H Mukhtar, MS Shaharun, MR Othman, T Murugesan, "Polysulfone/poly (ether sulfone) blended membranes for CO_2 separation" *Journal of Applied Polymer Science-Wiley*, 133 (2016) 42946; DOI: https://doi.org/10.1002/app.42946
20. **HA Mannan**, H Mukhtar, T Murugesan, R Nasir, DF Mohshim, A Mushtaq, "Recent applications of polymer blends in gas separation membranes" *Chemical Engineering & Technology-Wiley*, 11 (2013) 1838-1847; DOI: https://doi.org/10.1002/ceat.201300342

PEER-REVIEWED CONFERENCE PROCEEDINGS

1. MRU Mustafa, MH Isa, FF Borhanuddin, **HA Mannan**, T Haneef, "Water quality monitoring along Kinta River in peninsular Malaysia" *IOP Conference Series: Materials Science and Engineering-Institute of Physics*, 991 (2020) 012097; DOI: https://doi.org/10.1088/1757-899X/991/1/012097
2. M Zia-ul-Mustafa, H Mukhtar, NAHM Nordin, **HA Mannan**, "Effect of [emim][BF_4] ionic liquid concentration on ionic liquid-polymeric membrane (ILPM) for CO_2/CH_4 separation" *IOP Conference Series: Materials Science and Engineering-Institute of Physics*, 736 (2020) 022028; DOI: https://doi.org/10.1088/1757-899X/736/2/022028
3. M Zia-ul-Mustafa, H Mukhtar, NAHM Nordin, **HA Mannan**, "Effect of imidazolium based ionic liquids on PES membrane for CO_2/CH_4 separation" *Materials Today: Proceedings-Elsevier*, 16 (2019) 1976-1982; DOI: https://doi.org/10.1016/j.matpr.2019.06.076
4. MA Abdullah, H Mukhtar, YY Fong, MS Shaharun, **HA Mannan**, "Effect of TiO_2 Incorporation on Separation Performance of Pure PES and PES/PVAc Blend Membranes" *Materials Science Forum-Trans Tech Publications*, 923 (2018) 35-39; DOI: https://doi.org/10.4028/www.scientific.net/MSF.923.35
5. MS Ahmad, DF Mohshim, R Nasir, **HA Mannan,** H Mukhtar, "Effect of solvents on the morphology and performance of Polyethersulfone (PES) polymeric membranes material for CO_2/CH_4 separation" *IOP Conference Series: Materials Science and Engineering-Institute of Physics*, 290 (2018) 012074; DOI: https://doi.org/10.1088/1757-899X/290/1/012074
6. S Galaleldin, **HA Mannan,** H Mukhtar, "Development and characterization of polyethersulfone/TiO_2 mixed matrix membranes for CO_2/CH_4 separation" *AIP Conference Proceedings-American Institute of Physics*, 1901 (2017) 130017; DOI: https://doi.org/10.1063/1.5010577
7. MA Abdullah, H Mukhtar, **HA Mannan,** YY Fong, MS Shaharun, "Polymer Blend Membrane Compatibilized with TiO_2 Nanoparticles" in *Proceedings of the 2nd International Conference on Separation Technology-UTM*, (2017) G7-G8 [ISBN: 978 967 0194 851]
8. **HA Mannan,** H Mukhtar, MS Shahrun, MA Bustam, Z Man, MZ Abu Bakar, "Effect of [EMIM][Tf_2N] Ionic Liquid on Ionic Liquid-Polymeric Membrane (ILPM) for CO_2/CH_4

Separation" *Procedia Engineering-Elsevier*, 148 (2016) 25-29; DOI: https://doi.org/10.1016/j.proeng.2016.06.477

9. SHAA Hadi, **HA Mannan,** H Mukhtar, MS Shaharun, T Murugesan, "Morphological analysis of Polyethersulfone/polyvinyl Acetate blend membrane synthesized at various polymer concentrations" *IOP Conference Series: Earth and Environmental Science-Institute of Physics*, 36 (2016) 012015; DOI: https://doi.org/10.1088/1755-1315/36/1/012015
10. H Mukhtar, **HA Mannan,** D Minh, R Nasir, DF Moshshim, T Murugesan "Polymer blend membranes for CO_2 Separation from Natural Gas" *IOP Conference Series: Earth and Environmental Science-Institute of Physics*, 36 (2016) 012016; DOI: https://doi.org/10.1088/1755-1315/36/1/012016
11. SHAA Hadi, H Mukhtar, **HA Mannan,** T Murugesan, "Polyethersulfone/Polyvinyl Acetate Blend Membrane for CO_2/CH_4 Gas Separation" *Applied Mechanics & Materials-Trans Tech Publications*, 754 (2015) 44-48; DOI: https://doi.org/10.4028/www.scientific.net/AMM.754-755.44
12. **HA Mannan**, H Mukhtar, T Murugesan, "Preparation and characterization of newly developed polysulfone/polyethersulfone blend membrane for CO_2 separation" *Applied Mechanics & Materials-Trans Tech Publications*, 699 (2015) 325-330; DOI: https://doi.org/10.4028/www.scientific.net/AMM.699.325
13. **HA Mannan**, H Mukhtar, T Murugesan, "Polyethersulfone membranes for CO_2/CH_4 separation: Effect of polymer blending" *Applied Mechanics & Materials-Trans Tech Publications*, 625 (2014) 172-175; DOI: https://doi.org/10.4028/www.scientific.net/AMM.625.172