

Membrane Implementation in the Oil and Gas Industry

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Author Biography

Dr. Kian Habibi

Dr. Kian Habibi has a Ph.D. in Petroleum Engineering and he is an independent researcher, consultant, and Society of Petroleum Engineers volunteer for

Ambassador lecturer, and a member of SPE's young professionals. He is also a member of the editorial board of Petroleum Engineering Science and Journal. He is a member of the American Membrane Association for more than 4 years. Dr. Kian Habibi has published five books, and he has published articles in several prominent journals, he presented some of his works as papers at various national and international conferences as well. He also has ten years of experience working for the oil and gas industry.

Editorial

The MEAUS project was a collaboration between Centre Català del plàstic and Universitat Politècnica de Catalunya in the reputed research group in the field of membranes processed by extrusion.

Highlights of the work are:

* The combination of MEAUS technology along with debonding mechanism of filled samples to enlarge the range of porous morphologies obtained.

*A deep analysis of the uniaxial strain stage, correlating the mechanical properties.

*Mini-reactors for the generation of high value-added production Oils & Gas and Energy

*Biogas membrane reformer for decentralized H₂ production.

*Advanced Membranes and membrane assisted processes for pre-and post-combustion CO₂ capture.

Polymeric membranes through the MEAUS process have a positive role in the field of research and development of advanced studies of oil and gas reservoirs and also this method aims to be a leader in the membrane industry based on its up-to-date knowledge in the field of development and production of mineral-reinforced polymer membranes in a new way and help to defines the widespread use of these membranes in the energy/oil and gas/petrochemical and refining industries around the world [1-3]. This design focuses on the systematic description of the porous membrane obtained through the MEAUS process (melt extrusion - annealing - uniaxial strain). Polypropylene/calcium carbonate reinforced porous membrane (PP / CaCO₃) at different weight percentages [4,5].

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From porous membranes in the filtration of various gases in the oil and gas industry, including its use in the separation and filtering of toxic gases from flares located in various units of the industry, which in addition to helping to protect the environment and significantly reduce pollution from collected gases, it can also be used to return to the system and inject and reuse it in other parts of the industry [1,2,5].

From an energy and process reliability perspective, membranes are gradually competing for conventional separation processes such as distillation. In recent years, membrane gas separation (GS) technology has become one of the fastest emerging technologies due to its obvious advantages over conventional techniques. In particular, GS membrane gas separation has operational flexibility, low labor costs, easy scalability, high product quality, and compact design [1,3,4].

We hope it inspires you to pursue innovation in this industry, whether you go on the academic route or are inclined to do it yourself.

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