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Biomedical applications through membrane technology and chemical engineering

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Abstract

Chemical engineering provides knowledge of chemistry, biology, together with mathematics that allow the design of new treatments, drug delivery and tissue engineering in the quest of health to the growing world population in an overpopulated planet. Membrane technology is a branch of chemical engineering that was manufactured in the 1980s by researchers and professionals in chemistry, physics, biology, mathematics and engineering, with the aim of joining forces to reclaim funding and create a new "discipline" in the field of membrane technology. Chemical engineering can also provide opportunities to use renewable biodegradable polymers in membrane technology by improving mechanical resistance [1], ionic conductivity [2,3] and barrier properties [4], and expand the field of climate change mitigation, sustainable food packaging, and energy storage.

Biography

Clara Casado-Coterillo done European phd in chemical Engineering and is currently working as a research assistant in Department of Chemical and Biomolecular Engineering, University of Cantabria. She is interested in the research in New membrane materials for CO2 separation, capture and valorization; transversalitiy of the alkaline membrane materials to the development of alkaline resistant ion exchange membranes for electro-chemical devices, and antifouling properties of composite membranes for industrial separations.

Publications

1. Practical approach to zeolitic membranes and coatings: state of the art, opportunities, barriers, and future perspectives
2. Pervaporative dehydration of industrial solvents using a zeolite NaA commercial membrane
3. HKUST-1 MOF: A matrix to synthesize CuO and CuO–CeO2 nanoparticle catalysts for CO oxidation
4. Synthesis and characterisation of MOF/ionic liquid/chitosan mixed matrix membranes for CO 2/N 2 separation
5. Pervaporative dehydration of organic mixtures using a commercial silica membrane: Determination of kinetic parameters
6. Exfoliated titanosilicate material UZAR-S1 obtained from JDF-L1
7. Conversion of glucose to lactic acid derivatives with mesoporous Sn-MCM-41 and microporous titanosilicates
8. Advances in Hydrogen Separation and Purification with Membrane Technology
9. Preparation and characterization of ITQ-29/polysulfone mixed-matrix membranes for gas separation: Effect of zeolite composition and crystal size
10. Synthesis and characterisation of ETS-10/acetate-based ionic liquid/chitosan mixed matrix membranes for CO2/N2 permeation
11. Mixed matrix membres for gas separation with special nanoporous fillers
12. LTA/Poly(1-trimethylsilyl-1-propyne) Mixed-Matrix Membranes for High-Temperature CO2/N2 Separation
13. Seeded synthesis of layered titanosilicate JDF-L1
14. Modelling of the pervaporative flux through hydrophilic membranes
15. Permselectivity improvement in membranes for CO2/N2 separation

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