Journal of Membrane Science & Technology
ISSN: 2155-9589
OPEN ACCESS Freely available online
Editorial

An examination into Polymeric Membranes and Techniques for Recycling Potable Water

Ruby John*

Editorial Office, Journal of Membrane Science and Technology, Spain

EDITORIAL NOTE

Although traditional water resources in many areas are insufficient to fulfil the water needs of rising populations, reuse is becoming more popular as a means of supplementing water supplies. Recent advances in membrane technology have made it possible to reuse municipal wastewater to produce drinking water, a process known as potable reuse. Potable reuse is frequently the least energy-intensive technique of providing additional drinking water to water-stressed places, despite public opinion. Membranes have been created to filter a range of contaminants from water, including particles, pathogens, dissolved organic compounds, and salts. Polymeric membranes for microfiltration or ultrafiltration, as well as reverse osmosis and, in some circumstances, Nanofiltration, are commonly used in potable reuse treatment plants. Pore size, wettability, surface charge, roughness, thermal resistance, chemical stability, permeability, thickness, and mechanical strength are all characteristics that differ between membranes and applications. To increase selectivity, energy consumption, fouling resistance, and/or capital cost, new membrane materials, coatings, and manufacturing methods, as well as emerging membrane technologies including membrane bioreactors, Electrodialysis, and forward osmosis, have been created. The goal of this paper is to provide a complete overview of the function of polymeric membranes and process components in wastewater treatment to potable water quality, as well as to highlight new breakthroughs and demands in separation processes. This review goes beyond membranes to include the background and history of potable reuse, as well as common potable reuse process chains, pre-treatment steps, and advanced oxidation processes. Novel configurations, materials, and fouling avoidance approaches are all hot topics in membrane technology. Chemical and biological pollutant removal, membrane fouling, and public perception are all emphasised as issues in need of more study and development in membrane-based potable reuse applications. Planned potable reuse has become an increasingly significant component of water resource management for many urban places across the world due to dwindling water supplies and growing populations. Although due to inherent water losses, reuse of wastewater can only be a small part of a water supply portfolio, it can supplement the supply of water for agriculture and industry even in areas where traditional supplies are unreliable due to climate change and periodic droughts. Membranes, particularly polymeric membranes, play a critical role in the purification of municipal wastewater to potable standards, and are a critical component of many of these systems. Despite the available technologies, a number of issues such as membrane fouling, contaminant permeation, energy consumption, high pre-treatment costs, managing treatment residuals, membrane integrity, and public perception limit widespread adoption of potable reuse. More research and innovation is needed. Most membrane separations work on the basis of selective filtration of influent through pores of various sizes. Based on the size ranges of several common elements found in water and the effective pore size of the membrane, summarises the separation performance of these membrane types. Removal of pathogens and chemical pollutants will be a continuing focus as the practise of potable reuse grows more popular. It's possible that new treatment criteria will be imposed by the government. Polymeric membrane systems can remove target elements from an aqueous solution in a variety of ways, depending on a variety of criteria such as constituent physicochemical qualities, membrane type, and operational conditions.

Correspondence to: Ruby John, Editorial Office, Journal of Membrane Sciences and Technology, Spain, Email: biologscience@escienceopen.com

Received: October 12, 2021; **Accepted:** October 14, 2021; **Published:** October 21, 2021

Citation: John R (2021) An examination into Polymeric Membranes and Techniques for Recycling Potable Water. J Membr Sci Technol. 11:255.