

Title (2)	:	Polymer-based nanocomposite membranes for industrial wastewater treatment: A review
Journal	:	Journal of Environmental Chemical Engineering
Document Type	:	Review
Publisher	:	Elsevier Ltd.
UniKL Author	:	Muzafar Zulkifli,Ahmad Naim Ahmad Yahaya
Link to Full Text	:	https://www.sciencedirect.com/science/article/abs/pii/S2213343724014064
Link to Scopus Preview	:	https://www.scopus.com/inward/record.uri?eid=2-s2.0-85196506744&doi=10.1016%2fj.jece.2024.113276&partnerID=40&md5=6649a1c8278d5b324b187056d98572fb
Abstract	:	The demand for freshwater consumption has outpaced the rapid population growth, urbanization, and industrialization. Polymer nanocomposite plays an effective role in minimizing various environmental issues, including wastewater pollution. Integrating newly generated novel nanomaterials has sparked revolutionary and advantageous innovative nanotechnologies for industrial wastewater treatment. Nanomaterials have been used to create very effective materials for environmental applications, piquing the interest of academia and business worldwide. Additionally, improvements in polymer nanocomposite materials' characteristics have opened a wide range of industrial applications. Because they enhance membrane transport properties and offer exceptional stability under various operational conditions, polymer nanocomposites play a vital role in membrane materials. As a result, nanocomposite membranes are a new class of membranes made at the nanoscale from organic and inorganic polymeric materials. They are believed to perform better than traditional membranes. The present study reviewed the synthesis of polymer-based nanocomposite membrane technologies and the implementation of the polymer-based nanocomposite membrane in wastewater treatment. Furthermore, the review concentrated on patents related to cutting-edge polymer nanocomposites utilized in environmental applications. The inquiry also examined the thermodynamics of polymer blends, specifically focusing on their material transport and solubility.