

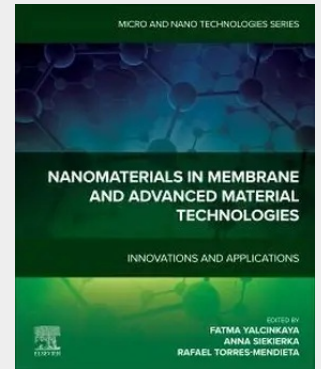
Nanomaterials in Membrane and Advanced Material Technologies

Innovations and Applications

Nanomaterials in Membrane and Advanced Material Technologies explores the combination of membranes with the unique properties of nanomaterials, providing a clear, detailed look at the advancements, challenges, and potential uses of this technology in various industries. Starting with a foundational introduction, the book reviews the fundamentals of membrane technology and the properties of nanomaterials, from carbon-based and metallic nanoparticles to polymeric and hybrid structures. It then discusses the fabrication and characterization techniques of nanomaterial-enhanced membranes, followed by a thorough analysis of their roles in different filtration processes such as microfiltration, nanofiltration, ultrafiltration, reverse osmosis, gas separation, and electro-membrane processes. The book also looks at the environmental impacts, safety concerns, and regulatory issues related to these technologies, ensuring a full understanding of their impact. This is an essential resource for researchers, materials scientists, engineers, and professionals in the fields of membrane technology, environmental science, and sustainability.

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