



membranes



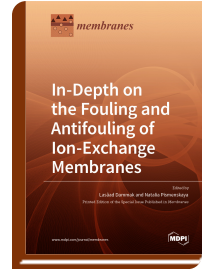
Special Issue Reprint

In-Depth on the Fouling and Antifouling of Ion-Exchange Membranes

www.mdpi.com/books/reprint/4792

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ISBN 978-3-0365-2724-6 (Hardback)
ISBN 978-3-0365-2725-3 (PDF)



The use of ion-exchange membranes (IEMs) has accelerated over the past two decades in a wide variety of industrial processes (electrodialysis, electro-electrodialysis, electrolysis, dialysis, etc.) for applications related to chemical, pharmaceutical and food industries, energy production, water treatments, etc. Organic and mineral fouling (or scaling) phenomena are two major factors limiting the efficiencies of IEMs processes and performances (reduction of the IEMs selectivity and stability, increase of their electrical resistance, deduction of the energy efficiency of the process, etc.) leading to significant economic losses. The current washing, cleaning and sterilization processes (anti-fouling treatments) make it possible to recover some of the IEMs performances, but frequently induce degradation on the membrane material.

Another essential point in the fouling studies is the choice of the best and appropriate analysis and diagnostic technique to evaluate this or that magnitude, or observe this or that object on the surface or in the mass of the membrane.

This book is focused on recent advancements in techniques for diagnosing and characterizing the fouling effects on membranes, in mechanisms governing this complex phenomenon, and in the various innovative and economically viable solutions for reducing fouling.



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