

# OSMOSIS ENGINEERING

## Edited by

Nidal Hilal, Ahmad Fauzi Ismail,  
Mohamed Khayet and Daniel Johnson

**Osmosis Engineering** provides a comprehensive overview of state-of-the-art osmosis-based research and industrial application. It covers the underpinning theories, technology development, and commercial applications of osmosis engineering, with chapters written by leading researchers in relevant fields. This book explores multidisciplinary topics that include innovative and advanced membranes and modules for osmosis separation processes, such as reverse osmosis, forward osmosis, pressure retarded osmosis, and osmotic membrane distillation.

Engineered osmosis (EO) refers to a family of membrane-based separation processes with wide industrial applications, but it is primarily associated with the production of drinking water from seawater and brackish water, as well as with the treatment of contaminated water and wastewater. EO is a rapidly advancing field that includes both isothermal and nonisothermal membrane separation processes used for water and energy production. This book examines the different applications of these processes, such as the treatment of radioactive waste, oily wastewater and heavy metal removal, draw solutions, pretreatment technologies necessary before the application of any osmosis process, fouling effects, the use of renewable energy-driven osmotic processes, and computational, environmental, and economic studies.

## Key features

- Explores state-of-the-art osmotic engineering technologies and applications
- Covers multidisciplinary topics in EO, including both fundamental and applied EO concepts
- Examines major challenges in osmosis engineering, such as fouling mitigation, membrane development, pretreatment, and energy usage

## About the Editors

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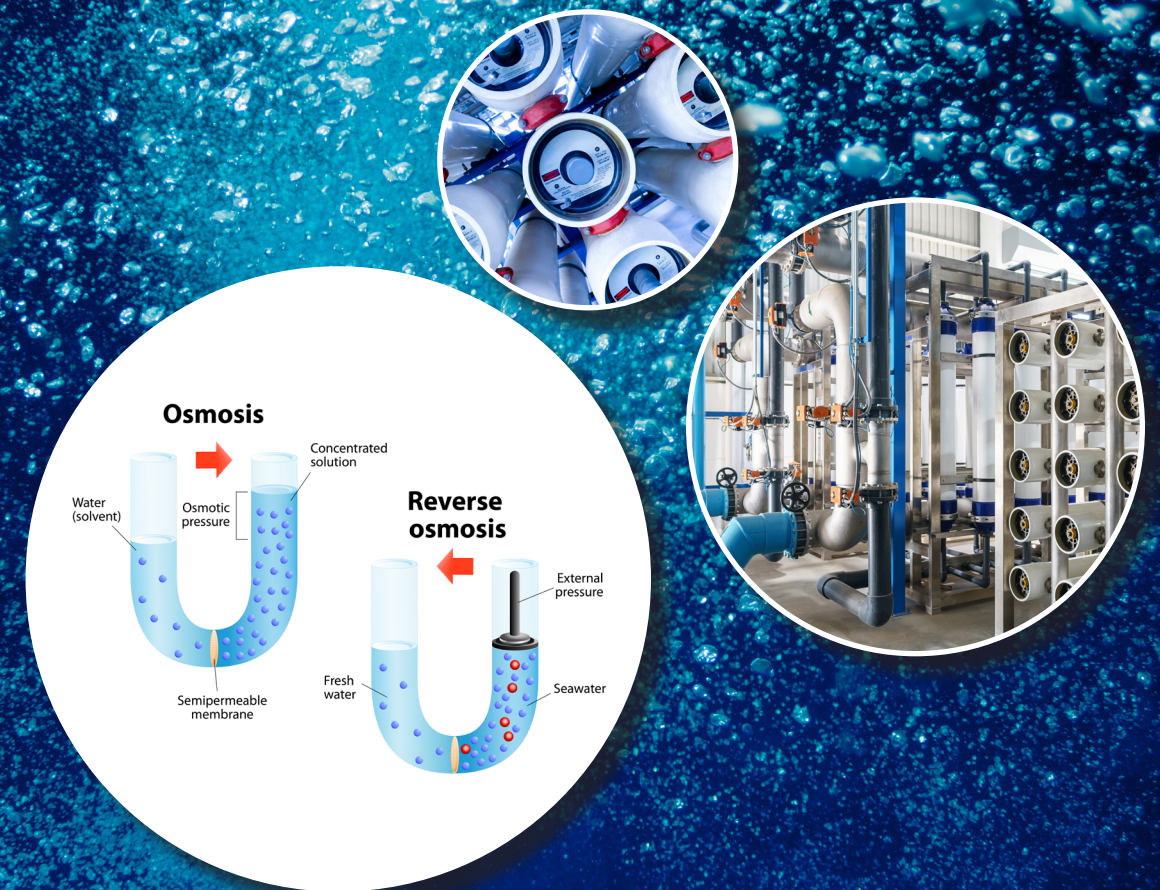


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