



Nano and Micro Engineered Membrane Technology (Hardback)

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ELSEVIER SCIENCE TECHNOLOGY, United Kingdom, 2004.
Hardback. Book Condition: New. New.. 241 x 165 mm. Language: English . Brand New Book. This book is about Nano and micro engineered membrane technology, an emerging new technological area in membrane technology. Potential applications cover a broad spectrum of science, such as micro and nano filtration, gas separation, optics and nanophotonics, catalysis, microbiology, controlled drug delivery, nanopatterning, micro contact printing, atomisation, cross flow emulsification, etc. A brief overview of filtration membranes and pore structures is presented in chapter 1 and in the subsequent chapter 2 an overview is presented of conventional micro perforation methods, like laser drilling, electroforming, precision etching etc. With micro engineering techniques (chapter 3), originating from the semiconductor industry, it is relatively easy to downscale and form submicron pores (down to 100 nm) using photolithographic methods, with e.g. contact masks and wafer steppers. In chapter 4 some elementary fluid mechanics related to fluid flow in conducts and single and multiple orifices is presented covering analytical methods as well as computational fluid dynamics. Much effort has been put in strength and maximum pressure load analysis (chapter 5) of perforated and unperforated membranes. New analytical expressions were obtained that were verified by...



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