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4.2 PERFORMANCE INDICATORS OF GAS SEPARATION MEMBRANES4.3 CERAMIC MEMBRANES FOR GAS SEPARATION; 4.3.1 Zeolite Membranes; 4.3.2 Silica Membranes; 4.3.3 Carbon Membranes; 4.4 TRANSPORT MECHANISMS; 4.4.1 Knudsen and Slip Flow; 4.4.2 Viscous Flow; 4.4.3 Surface Flow; 4.4.4 Capillary Condensation [37, 48, 49]; 4.4.5 Configurational or Micropore Diffusion; 4.4.6 Simultaneous Occurrence of Different Mechanisms [53]; 4.5 MODIFICATION OF POROUS CERAMIC MEMBRANES FOR GAS SEPARATION; 4.6 RESISTANCE MODEL FOR GAS TRANSPORT IN COMPOSITE MEMBRANES; 4.6.1 Effect of Support Layers
4.6.2 Effect of Nonzeolitic Pores4.6.3 Effect of Coating; 4.7 SYSTEM DESIGN; 4.7.1 Operating Schemes; 4.7.2 Design Equations for Membrane Processes in Gas Separation; NOTATION; Greek Letters; Superscripts; Subscripts; REFERENCES; 5: Ceramic Hollow Fibre Membrane Contactors for Treatment of Gases/Vapours; 5.1 INTRODUCTION; 5.2 GENERAL REVIEW; 5.3 OPERATING MODES AND MASS TRANSFER COEFFICIENTS; 5.3.1 Nonwetted Mode; 5.3.2 Wetted Mode; 5.3.3 Mass Transfer Coefficients Determined from Experiments; 5.4 MASS TRANSFER IN HOLLOW FIBRE CONTACTORS; 5.4.1 Mass Transfer in Hollow Fibre Lumens
5.4.2 Mass Transfer Across Membranes

Sommario/riassunto

Ceramic Membranes for Reaction and Separation is the first single-authored guide to the developing area of ceramic membranes. Starting by documenting established procedures of ceramic membrane preparation and characterization, this title then focuses on gas separation. The final chapter covers ceramic membrane reactors;- as distributors and separators, and general engineering considerations. Chapters include key examples to illustrate membrane synthesis, characterisation and applications in industry.Theoretical principles, advantages and disadvantages of using ceramic membr