

1. Record Nr.	UNINA9910831049303321
Autore	Kucera Jane
Titolo	Reverse osmosis : industrial processes and applications // Jane Kucera
Pubbl/distr/stampa	Hoboken, New Jersey ; ; Salem, Massachusetts : , : Scrivener Publishing : , : Wiley, , 2015 ©2015
ISBN	1-5231-1050-3 1-119-14578-3 1-119-14577-5
Edizione	[2nd ed.]
Descrizione fisica	1 online resource (475 p.)
Disciplina	628.1/6744
Soggetti	Water - Purification - Reverse osmosis process Industrial water supply
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Cover; Title Page; Copyright Page; Contents; Preface; Acknowledgements for the First Edition; Acknowledgements for the Second Edition; Part 1: Fundamentals; 1 Introduction and History of Development; 1.1 Introduction; 1.1.1 Uses of Reverse Osmosis; 1.1.2 History of Reverse Osmosis Development; 1.1.3 Recent Advances in RO Membrane Technology; 1.1.4 Future Advancements; 1.1.5 Advances Since First Edition of this Book; References; 2 Reverse Osmosis Principles; 2.1 Osmosis; 2.2 Reverse Osmosis; 2.3 Dead-End Filtration; 2.4 Cross-Flow Filtration; 3 Basic Terms and Definitions 3.1 Reverse Osmosis System Flow Rating 3.2 Recovery; 3.3 Rejection; 3.4 Flux; 3.5 Concentration Polarization; 3.6 Beta; 3.7 Fouling; 3.8 Scaling; 3.9 Silt Density Index; 3.10 Modified Fouling Index; 3.11 Langelier Saturation Index; References; 4 Membranes; 4.1 Transport Models; 4.1.1 Solution-Diffusion Model (non-porous model); 4.1.2 Solution-Diffusion Imperfection Model (porous model); 4.1.3 Finely-Porous Model (porous model); 4.1.4 Preferential Sorption - Capillary Flow Model (porous model); 4.1.5 Phenomenological Transport Relationship (Irreversible thermodynamics); 4.2 Membrane Materials

4.2.1 Cellulose Acetate Membranes-Asymmetric Membranes4.2.2  
Polyamide and Composite Membranes; 4.2.3 Improvements to  
Polyamide, Composite Membranes; 4.2.4 Other Membrane Materials;  
4.3 Membrane Modules; 4.3.1 Plate and Frame Modules; 4.3.2 Tubular  
Modules; 4.3.3 Spiral Wound Modules; 4.3.4 Hollow Fine Fiber  
Membrane Modules; 4.3.5 Other Module Configurations; 4.4  
Commercially-Available Membranes; 4.4.1 Seawater Water Membranes;  
4.4.2 Brackish Water Membranes; References; 5 Basic Flow Patterns; 5.1  
Arrays; 5.2 Recycle; 5.3 Double Pass; 5.4 Multiple Trains; 6 Reverse  
Osmosis Skids  
6.1 Cartridge Filters6.2 Reverse Osmosis Feed Pumps; 6.3 Pressure  
Vessels; 6.4 Manifolding-Materials of Construction; 6.5  
Instrumentation; 6.6 Controls; 6.7 Data Acquisition and Management;  
6.8 Reverse Osmosis Skid; 6.9 Auxiliary Equipment; 6.10 Other Design  
Considerations; 6.10.1 Access to Profile and Probe RO Membranes;  
6.10.2 Interstage Performance Monitoring Instrumentation; 6.10.3  
Stage-by-Stage Membrane Cleaning; References; Part 2: Pretreatment;  
7 Water Quality Guidelines; 7.1 Suspended Solids; 7.2 Microbes; 7.3  
Organics; 7.4 Color; 7.5 Metals; 7.6 Hydrogen Sulfide; 7.7 Silica  
7.8 Calcium Carbonate7.9 Trace Metals-Barium and Strontium; 7.10  
Chlorine; 7.11 Calcium; 7.12 Exposure to Other Chemicals; References;  
8 Techniques and Technologies; 8.1 Mechanical Pretreatment; 8.1.1  
Clarifiers; 8.1.2 Multimedia Pressure Filters; 8.1.3 High-Efficiency  
Filters; 8.1.4 Carbon Filters; 8.1.5 Iron Filters; 8.1.6 Sodium Softeners;  
8.1.7 Spent Resin Filters; 8.1.8 Ultraviolet Irradiation; 8.1.9 Membrane;  
8.2 Chemical Pretreatment; 8.2.1 Chemical Oxidizers for Disinfection of  
Reverse Osmosis Systems; 8.2.2 Non-Oxidizing Biocides; 8.2.3 Sodium  
Metabisulfite for Dechlorination  
8.2.4 Antiscalants

---