1. Record Nr. UNINA9911004832903321

Titolo	Liquid membranes : principles and applications in chemical separations and wastewater treatment / / edited by Vladimir S. Kislik
Pubbl/distr/stampa	Amsterdam ; ; Boston, : Elsevier, 2010
ISBN	9786612711619 9781282711617 128271161X 9780080932569 0080932568
Descrizione fisica	1 online resource (462 p.)
Altri autori (Persone)	KislikVladimir S
Disciplina	628.352
Soggetti	Sewage - Purification - Reverse osmosis process Membrane separation Liquid membranes
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 and index.
Nota di contenuto	Front Cover; Liquid Membranes: Principles and Applications in Chemical Separations and Wastewater Treatment; Copyright; Contents; Preface; List of Contributors; Chapter 1: Introduction, General Description, Definitions, and Classification. Overview; 1. Introduction; 2. General Description of the LM Processes; 3. Terminology and Classification; 3.1. Classification according to module design configurations; 3.1.1. Bulk liquid membrane; 3.1.2. Supported or immobilized liquid membranes; 3.1.3. Emulsion liquid membranes; 3.2. Classification according to transport mechanisms 3.2.1. Simple transport3.2.2. Facilitated or carrier-mediated transport; 3.2.3. Coupled counter- or cotransport; 3.2.4. Active transport; 3.3. Classification according to applications; 3.4. Classification according to carrier type; 3.5. Classification according to membrane support type; 4. Overview; References; Chapter 2: Carrier-Facilitated Coupled Transport Through Liquid Membranes: General Theoretical Considerations and Influencing Parameters; 1. Introduction; 2. Mechanisms and Kinetics of Carrier-Facilitated Transport Through Liquid Membranes; 2.1 Models of

LM transport

2.2 Diffusion transport regime2.2.1. Mathematical description of the diffusion transport; 2.2.2. Determination of diffusion coefficients; 2.3 Chemical reactions' kinetics regime transport; 2.3.1. Mathematical description of kinetic regime transport; 2.3.2. Determination of kinetic parameters; 2.4 Mixed diffusional-kinetic transport regime; 2.4.1. Identification of the rate-controlling transport regimes; 2.4.2. Basic parameters of transport regime; 2.4.3. Determination of transport parameters; 3. Driving Forces in Facilitated, Coupled Liquid Membrane Transport; 4. Selectivity

5. Module Design Considerations for Separation Systems6. Factors, Affecting Carrier-Facilitated Coupling Transport; 6.1. Carrier properties; 6.2. Solvent properties influencing transport; 6.3. Membrane support properties; 6.4. Coupling ions: Anion type; 6.5. Influence of concentration polarization and fouling; 6.6. Influence of temperature; 7. Summary Remark; References; Chapter 3: Supported Liquid Membranes and Their Modifications: Definition, Classification, Theory, Stability, Application and Perspectives; 1. Introduction; 2. Supported Liquid Membrane Separation Technique-the Principle

3. Transport Mechanisms and Kinetics3.1. Driving force and transport mechanisms; 3.1.1. Simple permeation; 3.1.2. Carrier-mediated (facilitated) transport; 3.2. Product recovery and enrichment; 4. Selectivity; 4.1. Transport selectivity; 4.1.1. Selectivity of the simple permeation process; 4.1.2. Selectivity of carrier-mediated transport; 4.2. Immunological trapping; 4.3. Stereoselectivity; 5. Process and Membrane Units Design; 5.1. Commonly used supports; 5.1.1. Polymeric support; 5.1.2. Inorganic support; 5.2. Organic solvents used in SLM; 5.3. Ionic liquids as membrane phase

5.4. Membrane units (module design)

Sommario/riassunto

This product provides comprehensive information on liquid membrane separations, presenting the principles and applications of a variety of liquid membrane separation processes. A critical analysis of new technologies and their theoretical background is presented, as well as directions for future development.- Provides comprehensive knowledge-based information on the principles and applications of a variety of liquid membrane separation processes. - Contains a critical analysis of new technologies published in the last 15 years.