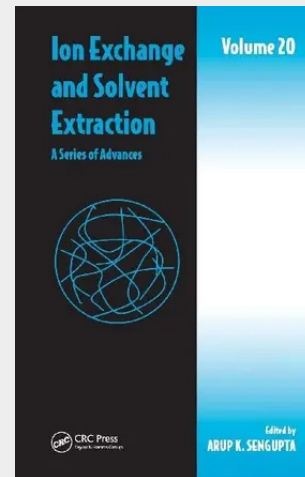


Ion Exchange and Solvent Extraction

A Series of Advances, Volume 20

Over the past four decades, notable advancements in the theory and application of ion exchange science uncovered a wealth of knowledge that fueled new scientific pursuits and created synergies with myriad scientific endeavors. Today, pioneers continue to break new ground by synthesizing novel materials and merging the interdisciplinary fields of science and engineering. Now in its 20th volume, *Ion Exchange and Solvent Extraction: A Series of Advances* chronicles the ongoing changes that drive innovation in this important field. Beginning with a review of research studies that show how functionalized ion exchange polymers serve as supports to stabilize metal nanoparticles (MNPs) without forming larger than nano aggregates, the book describes the sorption of different gases from the air by ion exchange resins and fibrous ion exchangers and discusses the selective ion exchange technology capable of removing and recovering perchlorate quantitatively through stable isotope ratio analysis of chlorine and oxygen atoms, allowing for the forensic analysis of perchlorate origin in contaminated water. Later chapters demonstrate how numerical simulations coupled with small-scale bench-top experiments can help tailor particle size distribution and enhance the efficiency of each application, review dual-temperature ion exchange processes in which sorption and desorption are carried out solely by varying temperature, and present the preparation and characterization of a new composite material in which microparticles of clinoptilolite are embedded in a matrix of cross-linked chitosan, opening new opportunities for the natural biopolymer. The book concludes with the preparation, characterization, and field-level experience of an emerging class of "hybrid ion exchangers" that enhance the application opportunities of ion exchange resins. Highlighting the latest and most pivotal discoveries, the 20th volume of a field standard codifies the current state-of-the-art and lays the groundwork for the next generation of growth and expansion in the field of ion exchange.

Over the past four decades, notable advancements in the theory and application of ion exchange science uncovered a wealth of knowledge that fueled new scientific pursuits and created synergies with myriad scientific endeavors. Today, pioneers continue to break new ground by synthesizing novel materials and merging the interdisciplinary fields of science and engineering. Now in its 20th volume, *Ion Exchange and Solvent Extraction: A Series of Advances* chronicles the ongoing changes that drive innovation in this important field. Beginning with a review of research studies that show how functionalized ion exchange polymers serve as supports to stabilize metal nanoparticles (MNPs) without forming larger than nano aggregates, the book describes the sorption of different gases from the air by ion exchange resins and fibrous ion exchangers and discusses the selective ion exchange technology capable of removing and recovering perchlorate quantitatively through stable isotope ratio analysis of chlorine and oxygen atoms, allowing for the forensic analysis of perchlorate origin in contaminated water. Later chapters demonstrate how numerical simulations coupled with small-scale bench-top experiments can help tailor particle size distribution and enhance the efficiency of each application, review dual-temperature ion exchange processes in which sorption and desorption are carried out solely by varying temperature, and present the preparation and characterization of a new composite material in which microparticles of clinoptilolite are embedded in a matrix of cross-linked chitosan, opening new opportunities for the natural biopolymer. The book concludes with the preparation, characterization, and field-level experience of an emerging class of "hybrid ion exchangers" that enhance the application opportunities of ion exchange resins. Highlighting the latest and most pivotal discoveries, the 20th volume of a field standard codifies the current state-of-the-art and lays the groundwork for the next generation of growth and expansion in the field of ion exchange.



207,30 €

207,30 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

Artikelnummer: 9781439855393

Medium: Buch

ISBN: 978-1-4398-5539-3

Verlag: CRC Press

Erscheinungstermin: 10.03.2011

Sprache(n): Englisch

Auflage: 1. Auflage 2011

Serie: Ion Exchange and Solvent Extraction Series

Produktform: Gebunden

Gewicht: 716 g

Seiten: 366

Format (B x H): 161 x 240 mm

