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Nota di contenuto	Ion Chromatography; Preface; Acknowledgements; Table of Contents; 1 Introduction and Overview; 1.1 Introduction; 1.2 Historical Development; 1.3 Principles of Ion Chromatographic Separation and Detection; 1.3.1 Requirements for Separation; 1.3.2 Experimental Setup; 1.3.3 Performing a Separation; 1.3.4 Migration of Sample Ions; 1.3.5 Detection; 1.3.6 Basis for Separation; 1.4 Hardware; 1.4.1 Components of an IC Instrument; 1.4.2 Dead Volume; 1.4.3 Degassing the Eluent; 1.4.4 Pumps; 1.4.5 Gradient Formation; 1.4.6 Pressure; 1.4.7 Injector; 1.4.8 Column Oven; 1.4.9 Column Hardware 1.4.10 Column Protection1.4.11 Detection and Data System; 1.4.12 Electrolytic Generation of Eluents; 1.5 Separation of Ions By Capillary Electrophoresis; 1.6 Literature; 2 Historical Development of Ion-Exchange Separations; 2.1 Introduction; 2.2 Separation of Cations; 2.2.1 Cation Separations Based On Affinity Differences; 2.2.2 Cation Separations with Complexing Eluents; 2.2.3 Effect of Organic Solvents; 2.3 Separation of Anions; 2.3.1 Separation of Anions with the Use of Affinity Differences; 2.3.2 Anion Separations Involving Complex Formation; 2.3.3. Effect of Organic Solvents

3 Ion-Exchange Resins 3.1 Introduction; 3.2 Polymeric Resins; 3.2.1 Substrate and Cross-Linking; 3.2.2 Microporous Resins; 3.2.3 Macroporous Resins; 3.2.4 Chemical Functionalization; 3.2.5 Resin Capacity; 3.3 Anion Exchangers; 3.3.1 Poly(styrene-divinylbenzene) Backbone (PS-DVB); 3.3.2 Polyacrylate Anion Exchangers; 3.3.3 Effect of Functional Group Structure on Selectivity; 3.3.4 Effect of Spacer Arm Length; 3.3.5 Quaternary Phosphonium Resins; 3.3.6 Latex Agglomerated Ion Exchangers; 3.3.7 Effect of Latex Functional Group on Selectivity; 3.3.8 Silica-Based Anion Exchangers 3.3.9 Alumina Materials 3.4 Cation Exchangers; 3.4.1 Polymeric Resins; 3.4.1.1 Sulfonated Resins; 3.4.1.2 Weak-Acid Cation Exchangers; 3.4.2 Pellicular Resins; 3.4.3 Silica-Based Cation Exchangers; 3.5 Chelating Ion-Exchange Resins; 4 Detectors; 4.1 Introduction; 4.2 Conductivity Detectors; 4.2.1 Conductivity Definitions and Equations; 4.2.2 Principles of Cell Operation; 4.2.3 Conductance Measurement; 4.2.4 Hardware and Detector Operation; 4.3 Ultraviolet-Visible Detectors; 4.3.1 Direct Spectrophotometric Measurement; 4.3.2 Post-Column Derivatization; 4.3.3 Hardware and Detector Operation 4.4 Electrochemical Detectors 4.4.1 Detector Principles; 4.4.2 Pulsed Techniques; 4.4.3 Post-Column Derivatization; 4.4.4 Hardware and Detector Operation; 4.5 Refractive Index Detection; 4.6 Other Detectors; 5 Principles of Ion Chromatographic Separations; 5.1 Basic Chromatographic Considerations; 5.1.1 Chromatographic Terms; 5.1.2 Retention Factors; 5.2 Ion-Exchange Equilibria; 5.2.1 Selectivity Coefficients; 5.2.2 Other Ion-Exchange Interactions; 5.2.3 Distribution Coefficient; 5.2.4 Retention Factor; 5.3 Selectivity of Sulfonated Cation-Exchange Resin for Metal Cations 5.3.1 Elution with Perchloric Acid and Sodium Perchlorate

Sommario/riassunto

Reflecting the tremendous development of ion chromatography in recent years, the best-selling book by Fritz and Gjerde has now gone into a third edition. This is essentially a new book, describing materials, principles, and methods of ion chromatography in a clear and concise style. The book can be used both as an introduction for the new comer and as a practical guide for method development and applications for the experienced user. It contains handy tables with useful data, e. g. on detection and elution conditions. With this new edition, the scope has been enlarged to include capillary e