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Altri autori (Persone)	KazakevichYuri LoBruttoRosario
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Nota di contenuto	HPLC FOR PHARMACEUTICAL SCIENTISTS; CONTENTS; PREFACE; CONTRIBUTORS; PART I HPLC THEORY AND PRACTICE; 1 Introduction; 1.1 Chromatography in the Pharmaceutical World; 1.2 Chromatographic Process; 1.3 Classification; 1.4 History of Discovery and Early Development (1903-1933); 1.5 General Separation Process; 1.5.1 Modern HPLC Column; 1.5.2 HPLC System; 1.6 Types of HPLC; 1.6.1 Normal-Phase Chromatography (NP HPLC); 1.6.2 Reversed-Phase HPLC (RP HPLC or RPLC); 1.6.3 Ion-Exchange Chromatography (IEX); 1.6.4 Size-Exclusion Chromatography (SEC); 1.7 HPLC Descriptors (Vr, k, N, etc.) 1.7.1 Retention Volume1.7.2 Void Volume; 1.7.3 Retention Factor; 1.7.4 Selectivity; 1.7.5 Efficiency; 1.7.6 Resolution; References; 2 HPLC Theory; 2.1 Introduction; 2.2 Basic Chromatographic Descriptors; 2.3 Efficiency; 2.4 Resolution; 2.5 HPLC Retention; 2.6 Retention

Mechanism; 2.7 General Column Mass Balance; 2.8 Partitioning Model; 2.9 Adsorption Model; 2.10 Total and Excess Adsorption; 2.11 Mass Balance in Adsorption Model; 2.12 Adsorption of the Eluent Components; 2.13 Void Volume Considerations; 2.14 Thermodynamic Relationships; 2.14.1 Effect of the Eluent Composition
2.15 Adsorption-Partitioning Retention Mechanism2.16 Secondary Equilibria; 2.16.1 Inclusion of Secondary Equilibria in the Mass Balance; 2.16.2 Salt Effect; 2.17 Gradient Elution Principles; 2.18 Types of Analyte Interactions with the Stationary Phase; 2.19 Conclusion; References; 3 Stationary Phases; 3.1 Introduction; 3.2 Type of Packing Material (Porous, Nonporous, Monolithic); 3.3 Base Material (Silica, Zirconia, Alumina, Polymers); 3.4 Geometry; 3.4.1 Shape (Spherical/Irregular); 3.4.2 Particle Size Distribution; 3.4.3 Surface Area; 3.4.4 Pore Volume; 3.4.5 Surface Geometry
3.5 Adsorbent Surface Chemistry3.5.1 Surface Chemistry of the Base Material; 3.5.2 Silica; 3.5.3 Silica Hybrid; 3.5.4 Polymeric Packings; 3.5.5 Zirconia (Metal Oxides); 3.5.6 Porous Carbon (or Carbon-Coated Phases); 3.6 Surface of Chemically Modified Material; 3.6.1 Limits of Surface Modification; 3.6.2 Chemical Modification; 3.6.3 Types of Bonded Phases; 3.6.4 Structure of the Bonded Layer; 3.6.5 Density of Bonded Ligands; 3.6.6 Residual Silanoles; 3.6.7 Surface Area of Modified Adsorbent; 3.7 Polymer-Based Adsorbents; 3.8 Stationary Phases for Chiral Separations
3.8.1 Polysaccharide-Coated Phases3.8.2 Pirkle-Type Phases; 3.8.3 Protein Phases; 3.8.4 Molecular Imprinted Polymers for Chiral Separations; 3.9 Columns; 3.9.1 Capillary/Monolithic/Packed Columns; 3.9.2 Column Cleaning; 3.9.3 Column Void Volume; 3.9.4 Mass of Adsorbent in the Column; References; 4 Reversed-Phase HPLC; 4.1 Introduction; 4.2 Retention in Reversed-Phase HPLC; 4.3 Stationary Phases for RPLC; 4.4 Mobile Phases for RPLC; 4.4.1 Eluent Composition and Solvent Strength of the Mobile Phase; 4.4.2 Type of Organic Modifier
4.4.3 Selectivity as a Function of Type and Concentration of Organic Composition

Sommario/riassunto

HPLC for Pharmaceutical Scientists is an excellent book for both novice and experienced pharmaceutical chemists who regularly use HPLC as an analytical tool to solve challenging problems in the pharmaceutical industry. It provides a unified approach to HPLC with an equal and balanced treatment of the theory and practice of HPLC in the pharmaceutical industry. In-depth discussion of retention processes, modern HPLC separation theory, properties of stationary phases and columns are well blended with the practical aspects of fast and effective method development and method validation. Pr