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Nota di contenuto	Light Scattering, Size Exclusion Chromatography and Asymmetric Flow Field Flow Fractionation; Contents; Preface; 1 Polymers; 1.1 Introduction; 1.2 Molecular Structure of Polymers; 1.2.1 Macromolecules in Dilute Solution; 1.3 Molar Mass Distribution; 1.3.1 Description of Molar Mass Distribution; 1.3.1.1 Distribution Functions; 1.3.1.2 Molar Mass Averages; 1.4 Methods for the Determination of Molar Mass; 1.4.1 Method of End Groups; 1.4.2 Osmometry; 1.4.2.1 Vapor Pressure Osmometry; 1.4.2.2 Membrane Osmometry; 1.4.3 Dilute Solution Viscometry; 1.4.3.1 Properties of Mark-Houwink Exponent 1.4.3.2 Molecular Size from Intrinsic Viscosity 1.4.3.3 Dependence of Intrinsic Viscosity on Polymer Structure, Temperature, and Solvent; 1.4.4 Matrix-Assisted Laser Desorption Ionization Time-of-Flight Mass

Spectrometry; 1.4.5 Analytical Ultracentrifugation; 1.5 Keynotes; 1.6 References; 2 Light Scattering; 2.1 Theory and Basic Principles; 2.2 Types of Light Scattering; 2.2.1 Static Light Scattering; 2.2.1.1 Particle Scattering Functions; 2.2.1.2 Light Scattering Formalisms; 2.2.1.3 Processing the Experimental Data; 2.2.2 Dynamic Light Scattering; 2.3 Light Scattering Instrumentation  
2.4 Specific Refractive Index Increment  
2.5 Light Scattering in Batch and Chromatography Mode; 2.6 Parameters Affecting Accuracy of Molar Mass Determined by Light Scattering; 2.7 Examples of Light Scattering Measurement in Batch Mode; 2.8 Keynotes; 2.9 References; 3 Size Exclusion Chromatography; 3.1 Introduction; 3.2 Separation Mechanisms; 3.2.1 Steric Exclusion; 3.2.2 Restricted Diffusion; 3.2.3 Separation by Flow; 3.2.4 Peak Broadening and Separation Efficiency; 3.2.5 Secondary Separation Mechanisms; 3.3 Instrumentation; 3.3.1 Solvents; 3.3.2 Columns and Column Packing; 3.3.3 Detectors  
3.3.3.1 UV Detector  
3.3.3.2 Refractive Index Detector; 3.3.3.3 Infrared Detector; 3.3.3.4 Evaporative Light Scattering Detector; 3.3.3.5 Viscosity Detector; 3.3.3.6 Light Scattering Detector; 3.3.3.7 Other Types of Detectors; 3.4 Column Calibration; 3.4.1 Universal Calibration; 3.4.2 Flow Marker; 3.5 SEC Measurements and Data Processing; 3.5.1 Sample Preparation; 3.5.2 Determination of Molar Mass and Molar Mass Distribution; 3.5.3 Reporting Results; 3.5.4 Characterization of Chemical Composition of Copolymers and Polymer Blends; 3.5.5 Characterization of Oligomers  
3.5.6 Influence of Separation Conditions  
3.5.7 Accuracy, Repeatability, and Reproducibility of SEC Measurements; 3.6 Applications of SEC; 3.7 Keynotes; 3.8 References; 4 Combination of SEC and Light Scattering; 4.1 Introduction; 4.2 Data Collection and Processing; 4.2.1 Processing MALS Data; 4.2.1.1 Debye Fit Method; 4.2.1.2 Zimm Fit Method; 4.2.1.3 Berry Fit Method; 4.2.1.4 Random Coil Fit Method; 4.2.1.5 Influence of Light Scattering Formalism on Molar Mass and RMS Radius; 4.2.2 Determination of Molar Mass and RMS Radius Averages and Distributions; 4.2.3 Chromatogram Processing  
4.2.4 Influence of Concentration and Second Virial Coefficient

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## Sommario/riassunto

A comprehensive, practical approach to three powerful methods of polymer analysis and characterization. This book serves as a complete compendium of three important methods widely used for the characterization of synthetic and natural polymers—light scattering, size exclusion chromatography (SEC), and asymmetric flow field flow fractionation (A4F). Featuring numerous up-to-date examples of experimental results obtained by light scattering, SEC, and A4F measurements, *Light Scattering, Size Exclusion Chromatography and Asymmetric Flow Field Flow Fractionation* takes an all-in-one approach to

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