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Selectivity; 2.4 Enthalpic and Entropic Contributions in Anion Coordination; References; 3 Structural Aspects of Anion Coordination Chemistry; 3.1 Introduction; 3.2 Basic Concepts of Anion Coordination Chemistry; 3.3 Classes of Anion Hosts; 3.4 Acycles; 3.4.1 Bidentate; 3.4.2 Tridentate; 3.4.3 Tetradentate; 3.4.4 Pentadentate; 3.4.5 Hexadentate; 3.5 Monocycles; 3.5.1 Bidentate; 3.5.2 Tridentate; 3.5.3 Tetradentate; 3.5.4 Pentadentate; 3.5.5 Hexadentate; 3.5.6 Octadentate; 3.5.7 Dodecadentate; 3.6 Cryptands; 3.6.1 Bidentate; 3.6.2 Tridentate; 3.6.3 Tetradentate; 3.6.4 Pentadentate; 3.6.5 Hexadentate; 3.6.6 Septadentate; 3.6.7 Octadentate; 3.6.8 Nonadentate; 3.6.9 Decadentate; 3.6.10 Dodecadentate; 3.7 Transition-Metal-Assisted Ligands; 3.7.1 Bidentate; 3.7.2 Tridentate; 3.7.3 Tetradentate; 3.7.4 Hexadentate; 3.7.5 Septadentate; 3.7.6 Dodecadentate; 3.8 Lewis Acid Ligands; 3.8.1 Transition Metal Cascade Complexes; 3.8.2 Other Lewis Acid Donor Ligands; 3.8.2.1 Boron-Based Ligands; 3.8.2.2 Tin-Based Ligands; 3.8.2.3 Hg-Based Ligands; 3.9 Conclusion; Acknowledgments; References; 4 Synthetic Strategies; 4.1 Introduction; 4.2 Design and Synthesis of Polyamine-Based Receptors for Anions; 4.2.1 Acyclic Polyamine Receptors; 4.2.2 Tripodal Polyamine Receptors; 4.2.3 Macrocyclic Polyamine Receptors with Aliphatic Skeletons; 4.2.4 Macrocyclic Receptors Incorporating a Single Aromatic Unit; 4.2.5 Macrocyclic Receptors Incorporating Two Aromatic Units; 4.2.6 Anion Receptors Containing Separated Macrocyclic Binding Units; 4.2.7 Cryptands; 4.3 Design and Synthesis of Amide Receptors; 4.3.1 Acid Halides as Starting Materials; 4.3.1.1 Acyclic Amide Receptors; 4.3.1.2 Macrocyclic Amide Receptors; 4.3.2 Esters as Starting Materials; 4.3.3 Using Coupling Reagents; References; 5 Template Synthesis; 5.1 Introductory Remarks; 5.2 Macrocyclic Systems; 5.3 Bowl-Shaped Systems; 5.4 Capsule, Cage, and Tube-Shaped Systems; 5.5 Circular Helicates and meso-Helicates; 5.6 Mechanically Linked Systems; 5.7 Concluding Remarks; References; 6 Anion- δ Interactions in Molecular Recognition; 6.1 Introduction; 6.2 Physical Nature of the Interaction; 6.3 Energetic and Geometric Features of the Interaction Depending on the Host (Aromatic Moieties) and the Guest (Anions)

Sommario/riassunto

Building on the pioneering work in supramolecular chemistry from the last 20 years or so, this monograph addresses new and recent approaches to anion coordination chemistry. Synthesis of receptors, biological receptors and metallareceptors, the energetics of anion binding, molecular structures of anion complexes, sensing devices are presented and computational studies addressed to aid with the understanding of the different driving forces responsible for anion complexation. The reader is promised an actual picture of the state of the art for this exciting and constantly evolving field of su