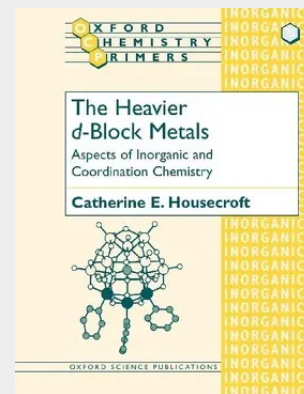


The Heavier d-Block Metals

Aspects of Inorganic and Coordination Chemistry

This book addresses the chemistry of the second and third row d-block metals, assuming a knowledge of the chemistry of the first row metals. Chapter 1 looks at the metals and summarizes occurrence, physical properties and uses. Chapter 2 considers periodic trends in properties. Chapter 3 considers aqueous solution chemistry, species present (with comparisons of the first row metal ions) and redox properties. Chapter 4 surveys structure: the range of coordination numbers shown by second and third row metals is often a topic for discussion in University courses. Chapter 5 looks at electronic spectra and magnetic properties, making comparisons with the first row the main objective of the chapter. Detailed mathematical treatments are not given. Chapter 6 considers metal-metal bonding, and the classes of compound that contain triple and quadruple bonds; the role of bridging ligands is introduced. Chapter 7 looks at selected clusters with a pi donor ligands (e.g. metal halo species) in which metal-metal bonding is important. Chapter 8 introduces the area of polyoxometallates, closing with a short discussion of the wide range of applications. The book contains many references to encourage wider reading by the student; in addition to textbooks of relevance, the author has included many recent literature citations, and a section called "Metals in Action" which gives citations which show the heavier metals at work in, for example, catalytic converters and molecular wires.

This primer addresses the chemistry of the second and third row d-block metals and assumes a knowledge of the chemistry of the first row metals. Beginning with a summary of basic properties, the book covers periodic trends, aqueous solution chemistry and redox properties, the range of coordination numbers shown by second and third row metals, electronic spectra and magnetic properties, metal-metal bonding, triple and quadruple bonds, bridging ligands, pi donor ligands in which metal-metal bonding is important, and polyoxometallates. The volume also contains a detailed guide for further reading and a section called "Metals in Action" which lists references for applications of d-block metals in such devices as catalytic converters and molecular wires.



29,60 €

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Lieferfrist: bis zu 10 Tage

Artikelnummer: 9780198501039

Medium: Buch

ISBN: 978-0-19-850103-9

Verlag: OUP Oxford

Erscheinungstermin: 04.02.1999

Sprache(n): Englisch

Auflage: Erscheinungsjahr 1999

Produktform: Kartoniert

Gewicht: 212 g

Seiten: 96

Format (B x H): 189 x 246 mm

