

## Chapter 4

# Native Elements

Chapter 4 examines the s-, p-, d- and f-block elements of the Periodic Table in order to identify the elements that occur in the native state in nature. The result indicates that native elements occur only within the p- and d-block elements. The chapter then explains why some of the p- and d-block elements occur in the native state while the s- and f-block elements are not known to occur as native elements. In addition, the chapter outlines the extraction of those native elements that are the principal sources of their elements and ends with a summary of the elements that occur in the native state.

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- 4.4 Summary of native elements
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## Chapter 5

# Oxides and Hydroxides

This chapter describes oxide and hydroxide minerals and discusses the influence the electronic configurations and the standard reduction potentials of s-, p-, d- and f-block elements have on the formation of oxide and hydroxide minerals. It explains why the s- and f-block elements in particular and some of the p- and d-block elements of unpaired electrons have the potential to form primary oxides and it specifies the elements that occur as oxides. In addition, the chapter outlines the extraction processes of the oxide minerals that are the principal sources of their metals. Finally, the chapter closes with a summary of the factors which favour the formation of oxide minerals and provides the s-, p-, d- and f-block elements that form oxide and hydroxide minerals.

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## Chapter 6

# Sulphide Minerals

This chapter describes the class of sulphide minerals which are divided here into the standard sulphides and the non-standard sulphides made up of selenides, tellurides, arsenides, antimonides, bismuthides, sulpharsenides, sulphantimonides, sulphobismuthides and sulphosalts. This class of minerals is one of the major sources of ore minerals used in the production of many important metals. In describing the sulphides, the chapter explores the potential of the s-, p-, d- and f-block elements to form sulphide minerals and presents some of the factors which favour the formation of sulphide minerals. It outlines the methods of processing the sulphide minerals that serve as the important sources of metals. The chapter ends with a summary of the factors which favour the formation of sulphide minerals and the summary of p- and d-block elements that form the essential sulphide minerals.

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