

6.3.1	Steel industry	514
6.3.2	Thermal power plants	517
6.4	Magnetic carrier techniques	519
6.4.1	General principles	519
6.4.2	Effluent processing and metal ion removal	520
6.4.3	Biomagnetic extraction of heavy metals	524
6.5	Magnetic carriers and separation in biosciences	525
6.5.1	Principles of biomagnetic separation techniques	525
6.5.2	Magnetic separators in biosciences	528
6.5.3	The application of magnetic separation	530
6.5.4	Separation of red blood cells by HGMS	533
6.6	Recovery of metals from wastes	534
6.6.1	The separation processes in metal recycling	535
6.6.2	Sorting of heavy non-ferrous metals	539
6.7	The applications of ferrohydrostatic separation	542
6.7.1	Recovery of gold and other platinum-group metals	543
6.7.2	Applications in the diamond winning industry	545
6.7.3	The fractionation analysis of coal	546
7	Innovation and future trends	551
7.1	Introduction	551
7.2	Science and technological innovation	552
7.3	Magnetic separation and innovation	555
7.3.1	Reliance on an empirical approach?	556
7.3.2	A walk through innovation in magnetic separation	556
7.4	The current status of magnetic separation technology	567
7.5	What the future holds?	567
7.5.1	Mineral processing	568
7.5.2	Biomedical applications	569
7.5.3	Recycling and waste processing	569
7.5.4	Prospects for superconductivity in magnetic separation	570
7.6	Research and development needs	573
	List of Symbols	577
	Bibliography	583
	Index	629