

1. Record Nr.	UNINA9910830492703321
Autore	Broekaert J. A. C. <1948->
Titolo	Analytical atomic spectrometry with flames and plasmas / / Jose A. C. Broekaert
Pubbl/distr/stampa	Weinheim, Germany ; ; Chichester, England : , : Wiley-VCH, , [2005] ©2005
ISBN	1-280-52112-0 9786610521128 3-527-60665-3 3-527-60677-7
Edizione	[Second edition.]
Descrizione fisica	1 online resource (428 p.)
Disciplina	543.52
Soggetti	Atomic spectroscopy Flame spectroscopy Plasma spectroscopy
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Previous ed.: 2002.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Analytical Atomic Spectrometry with Flames and Plasmas; Contents; Preface; Introduction; 1 Basic Principles; 1.1 Atomic structure; 1.2 Plasmas; 1.3 Emission and absorption of radiation; 1.4 Ionization; 1.5 Dissociation; 1.6 Sources for atomic spectrometry; 1.7 Analytical atomic spectrometry; 2 Spectrometric Instrumentation; 2.1 Figures of merit of an analytical method; 2.2 Optical spectrometers; 2.2.1 Optical systems; 2.2.2 Radiation detectors; 2.2.3 Miniaturized spectrometers; 2.2.4 Non-dispersive spectrometers; 2.3 Mass spectrometers; 2.3.1 Types of mass spectrometers; 2.3.2 Ion detection 2.3.3 Ion extraction2.3.4 Ion optics and transmission; 2.4 Data acquisition and treatment; 2.5 Traceability; 3 Sample Introduction Devices; 3.1 Sample introduction by pneumatic nebulization; 3.2 Ultrasonic nebulization; 3.3 Hydride and other volatile species generation; 3.4 Electrothermal vaporization; 3.4.1 The volatilization process; 3.4.2 Types of electrothermal devices; 3.4.3 Temperature programming; 3.4.4 Analytical performance; 3.5 Direct solids sampling; 3.5.1 Thermal methods; 3.5.2 Slurry atomization; 3.5.3 Arc and spark

ablation; 3.5.4 Laser ablation; 3.6 Cathodic sputtering  
4 Atomic Absorption Spectrometry 4.1 Principles; 4.2 Atomic absorption spectrometers; 4.2.1 Spectrometers; 4.2.2 Primary radiation sources; 4.3 Flame atomic absorption; 4.3.1 Flames and burners; 4.3.2 Nebulizers; 4.3.3 Figures of merit; 4.4 Electrothermal atomic absorption; 4.4.1 Atomizers; 4.4.2 Thermochemistry; 4.4.3 Figures of merit; 4.5 Special techniques; 4.5.1 Hydride and cold-vapor techniques; 4.5.2 Direct solids sampling; 4.5.3 Indirect determinations; 4.5.4 Flow injection analysis; 4.5.5 Diode laser atomic absorption spectrometry; 4.6 Background correction procedures  
4.6.1 Correction for background absorption with the deuterium lamp technique 4.6.2 Background correction with the aid of the Zeeman effect; 4.6.3 Smith-Hieftje technique; 4.6.4 Coherent forward scattering; 4.7 Fields of application; 4.8 Outlook; 5 Optical Emission Spectrometry; 5.1 Principles; 5.2 Atomic emission spectrometers; 5.3 Flame emission; 5.4 Arcs and sparks; 5.4.1 Arc emission spectrometry; 5.4.1.1 Arc characteristics; 5.4.1.2 DC arc spectrometry; 5.4.1.3 AC arc spectrometry; 5.4.2 Spark emission spectrometry; 5.4.2.1 Sparks; 5.4.2.2 Analytical features; 5.5 Plasma source OES  
5.5.1 DC plasma-jet OES 5.5.1.1 Types of plasma jets; 5.5.1.2 Three-electrode plasma jet; 5.5.2 Inductively coupled plasma OES; 5.5.2.1 The inductively coupled plasma; 5.5.2.2 Instrumentation; 5.5.2.3 Analytical performance; 5.5.2.4 Applications; 5.5.3 Low-power high-frequency plasmas; 5.5.4 Microwave plasmas; 5.6 Glow discharge OES; 5.6.1 Hollow cathodes for OES; 5.6.2 Furnace emission spectrometry; 5.6.3 DC glow discharges with a flat cathode; 5.6.4 RF glow discharges; 5.6.5 New developments; 5.7 Laser sources; 6 Plasma Mass Spectrometry; 6.1 ICP mass spectrometry; 6.1.1 Instrumentation  
6.1.2 Analytical features

#### Sommario/riassunto

This completely revised second edition of the standard work has been expanded by some twenty percent to include more information on the latest developments and new apparatus. In particular, sections have been added on microplasmas and new types of spectrometers, while that on the rapidly expanding field of speciations with practical examples from life and environmental sciences have been included. Still in one handy volume, the book covers all the important modern aspects of atomic fluorescence, emission and absorption spectroscopy as well as plasma mass spectroscopy in a readily compre