1. Record Nr. UNINA9910878098703321

Titolo	High-resolution continuum source AAS : the better way to do atomic absorption spectrometry / / Bernhard Welz ... [et al.]
Pubbl/distr/stampa	Weinheim ; ; [Great Britain], : Wiley-VCH, c2005
ISBN	1-280-52101-5 9786610521012 3-527-60651-3 3-527-60637-8
Descrizione fisica	1 online resource (309 p.)
Altri autori (Persone)	WelzBernhard
Disciplina	543.5
Soggetti	Atomic absorption spectroscopy Trace elements - Analysis
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	High-Resolution Continuum Source AAS; Preface; Contents; List of Physical Constants, Symbols and Abbreviations; 1. Historical Development of Continuum Source Atomic Absorption Spectrometry; 2. Theoretical Concepts; 2.1 Spectral Line Profiles; 2.1.1 Natural Line Width; 2.1.2 Doppler Broadening; 2.1.3 Collision Broadening; 2.1.4 Voigt Profiles; 2.1.5 Instrument Profile; 2.2 Atomic Absorption with a Continuum Source; 2.2.1 General Principle of Absorption; 2.2.2 Instrument Effects; 2.3 Structure of Molecular Spectra; 2.3.1 Electronic Transitions; 2.3.2 Vibrational Spectra 2.3.3 Rotational Spectra2.3.4 Dissociation Continua; 3. Instrumentation for HR-CS AAS; 3.1 Radiation Source; 3.2 Research Spectrometers with Active Wavelength Stabilization; 3.2.1 Echelle Grating; 3.2.2 Sequential Spectrometer; 3.2.3 Simultaneous Spectrometer; 3.3 Detector; 3.4 The contrAA 300 from Analytik Jena AG; 4. Special Features of HR-CS AAS; 4.1 The Modulation Principle; 4.2 Simultaneous Double-beam Concept; 4.3 Selection of Analytical Lines; 4.4 Sensitivity and Working Range; 4.5 Signal-to-Noise Ratio, Precision and Limit of Detection; 4.6 Multi-element Atomic Absorption Spectrometry 4.7 Absolute Analysis5. Measurement Principle in HR-CS AAS; 5.1

General Considerations; 5.2 Background Measurement and Correction; 5.2.1 Continuous Background; 5.2.2 Fine-structured Background; 5.2.3 Direct Line Overlap; 6. The Individual Elements; 6.1 Aluminum (Al); 6.2 Antimony (Sb); 6.3 Arsenic (As); 6.4 Barium (Ba); 6.5 Beryllium (Be); 6.6 Bismuth (Bi); 6.7 Boron (B); 6.8 Cadmium (Cd); 6.9 Calcium (Ca); 6.10 Cesium (Cs); 6.11 Chromium (Cr); 6.12 Cobalt (Co); 6.13 Copper (Cu); 6.14 Europium (Eu); 6.15 Gallium (Ga); 6.16 Germanium (Ge); 6.17 Gold (Au); 6.18 Indium (In); 6.19 Iridium (Ir)
6.20 Iron (Fe)6.21 Lanthanum (La); 6.22 Lead (Pb); 6.23 Lithium (Li); 6.24 Magnesium (Mg); 6.25 Manganese (Mn); 6.26 Mercury (Hg); 6.27 Molybdenum (Mo); 6.28 Nickel (Ni); 6.29 Palladium (Pd); 6.30 Phosphorus (P); 6.31 Platinum (Pt); 6.32 Potassium (K); 6.33 Rhodium (Rh); 6.34 Rubidium (Rb); 6.35 Ruthenium (Ru); 6.36 Selenium (Se); 6.37 Silicon (Si); 6.38 Silver (Ag); 6.39 Sodium (Na); 6.40 Strontium (Sr); 6.41 Sulfur (S); 6.42 Tellurium (Te); 6.43 Thallium (Tl); 6.44 Tin (Sn); 6.45 Titanium (Ti); 6.46 Tungsten (W); 6.47 Vanadium (V); 6.48 Zinc (Zn)
7. Electron Excitation Spectra of Diatomic Molecules7.1 General Considerations; 7.2 Individual Overview Spectra; 7.2.1 AgH; 7.2.2 AlCl; 7.2.3 AlF; 7.2.4 AlH; 7.2.5 AsO; 7.2.6 CN; 7.2.7 CS; 7.2.8 CuH; 7.2.9 GaCl; 7.2.10 LaO; 7.2.11 NH; 7.2.12 NO; 7.2.13 OH; 7.2.14 PO; 7.2.15 SH; 7.2.16 SiO; 7.2.17 SnO; 8. Specific Applications; 8.1 Flame Measurements; 8.1.1 Molecular Background in Flame AAS; 8.1.2 Drinking Water Analysis; 8.1.3 Sodium and Potassium in Animal Food and Pharmaceutical Products; 8.1.4 Determination of Zinc in Iron and Steel
8.1.5 Determination of Trace Elements in High-purity Copper

Sommario/riassunto

High-resolution continuum source atomic absorption spectrometry (HR-CS AAS) is the most revolutionary innovation since the introduction of AAS in 1955. Here, the authors provide the first complete and comprehensive discussion of HR-CS AAS and its application to the analysis of a variety of difficult matrices. Published just in time with the first commercial instrument available for this new technique, the book is a must for all those who want to know more about HR-CS AAS, and in particular for all future users.The advantages of the new technique over conventional line-source AAS are clearl