1. Record Nr. UNINA9910141317103321

Titolo	Handbook of green analytical chemistry / / edited by Miguel de la Guardia, Salvador Garrigues
Pubbl/distr/stampa	Chichester, West Sussex ; ; Hoboken, : John Wiley & Sons, 2012
ISBN	1-119-94094-X 1-280-59145-5 9786613621283 1-119-94072-9 1-119-94073-7
Edizione	[1st ed.]
Descrizione fisica	1 online resource (568 p.)
Altri autori (Persone)	GuardiaM. de la (Miguel de la) GarriguesSalvador
Disciplina	543
Soggetti	Environmental chemistry - Industrial applications Environmental chemistry
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	Handbook of Green Analytical Chemistry; Contents; List of Contributors; Preface; Section I: Concepts; 1 The Concept of Green Analytical Chemistry; 1.1 Green Analytical Chemistry in the frame of Green Chemistry; 1.2 Green Analytical Chemistry versus Analytical Chemistry; 1.3 The ethical compromise of sustainability; 1.4 The business opportunities of clean methods; 1.5 The attitudes of the scientific community; References; 2 Education in Green Analytical Chemistry; 2.1 The structure of the Analytical Chemistry paradigm; 2.2 The social perception of Analytical Chemistry 2.3 Teaching Analytical Chemistry2.4 Teaching Green Analytical Chemistry; 2.5 From the bench to the real world; 2.6 Making sustainable professionals for the future; References; 3 Green Analytical Laboratory Experiments; 3.1 Greening the university laboratories; 3.2 Green laboratory experiments; 3.2.1 Green methods for sample pretreatment; 3.2.2 Green separation using liquid-liquid, solid-phase and solventless extractions; 3.2.3 Green alternatives for chemical reactions; 3.2.4 Green spectroscopy; 3.3 The place of Green Analytical

Chemistry in the future of our laboratories; References
4 Publishing in Green Analytical Chemistry4.1 A bibliometric study of the literature in Green Analytical Chemistry; 4.2 Milestones of the literature on Green Analytical Chemistry; 4.3 The need for powerful keywords; 4.4 A new attitude of authors faced with green parameters; 4.5 A proposal for editors and reviewers; 4.6 The future starts now; References; Section II: The Analytical Process; 5 Greening Sampling Techniques; 5.1 Greening analytical chemistry solutions for sampling; 5.2 New green approaches to reduce problems related to sample losses, sample contamination, transport and storage
5.2.1 Methods based on flow-through solid phase spectroscopy5.2.2 Methods based on hollow-fiber GC/HPLC/CE; 5.2.3 Methods based on the use of nanoparticles; 5.3 Greening analytical in-line systems; 5.4 In-field sampling; 5.5 Environmentally friendly sample stabilization; 5.6 Sampling for automatization; 5.7 Future possibilities in green sampling; References; 6 Direct Analysis of Samples; 6.1 Remote environmental sensing; 6.1.1 Synthetic Aperture Radar (SAR) images (satellite sensors); 6.1.2 Open-path spectroscopy; 6.1.3 Field-portable analyzers 6.2 Process monitoring: in-line, on-line and at-line measurements6. 2.1 NIR spectroscopy; 6.2.2 Raman spectroscopy; 6.2.3 MIR spectroscopy; 6.2.4 Imaging technology and image analysis; 6.3 At-line non-destructive or quasi non-destructive measurements; 6.3.1 Photoacoustic Spectroscopy (PAS); 6.3.2 Ambient Mass Spectrometry (MS); 6.3.3 Solid sampling plasma sources; 6.3.4 Nuclear Magnetic Resonance (NMR); 6.3.5 X-ray spectroscopy; 6.3.6 Other surface analysis techniques; 6.4 New challenges in direct analysis; References; 7 Green Analytical Chemistry Approaches in Sample Preparation
7.1 About sample preparation

Sommario/riassunto

The emerging field of green analytical chemistry is concerned with the development of analytical procedures that minimize consumption of hazardous reagents and solvents, and maximize safety for operators and the environment. In recent years there have been significant developments in methodological and technological tools to prevent and reduce the deleterious effects of analytical activities; key strategies include recycling, replacement, reduction and detoxification of reagents and solvents. The Handbook of Green Analytical Chemistry provides a comprehensive overview of the pres