DESCRIPTION

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 present state and recent developments in green chemical analysis. A series of detailed chapters, written by international specialists in the field, discuss the fundamental principles of green analytical chemistry and present a catalogue of tools for developing environmentally friendly analytical techniques.

Topics covered include:

• **Concepts:** Fundamental principles, education, laboratory experiments and publication in green analytical chemistry.

• **The Analytical Process:** Green sampling techniques and sample preparation, direct analysis of samples, green methods for capillary electrophoresis, chromatography, atomic spectroscopy, solid phase molecular spectroscopy, derivative molecular spectroscopy and electroanalytical methods.

• **Strategies:** Energy saving, automation, miniaturization and photocatalytic treatment of laboratory wastes.

• **Fields of Application:** Green bioanalytical chemistry, biodiagnostics, environmental analysis and industrial analysis.
This advanced handbook is a practical resource for experienced analytical chemists who are interested in implementing green approaches in their work.

ABOUT THE AUTHOR

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Professor de la Guardia’s research is focused on the automation of analytical methods through multicommutation, sample preparation procedures, chemometrics, development of green analytical methods and development of portable spectrometers. He is a member of the editorial board of Spectroscopy Letters, Ciencia and J. Braz. Chem. Soc., and he was a member of the advisory board of Analytica Chimica Acta from 1995 to 2000. In addition, he is a government consultant for Portugal, Italy, Argentina and China for the evaluation of research proposals and grants. Professor de la Guardia prepared a special issue on Green Spectroscopy in Spectroscopy Letters in 2009, and he is in the process of preparing a special issue on Green Analytical Chemistry for TrAC which is due to publish in March 2010.

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Salvador Garrigues works in the research team with Prof. Miguel de la Guardia and has collaborated in more than 150 publications.