DESCRIPTION

This book covers one of the most important areas in analytical sciences, i.e. that of extraction techniques for organic compounds in environmental and related matrices, e.g. food. This text discusses all of the key stages for analysing a sample for organic compounds from the initial sampling protocols through to the range of different extraction techniques used for solid, liquid and air samples and finally through to the final chromatographic analysis. The text provides detailed information on specific extraction techniques to prepare samples for organic compound analysis.

The topics covered include the following:

• Initial steps for solid, aqueous and air sampling.

• Extraction techniques for aqueous samples, including LLE, purge and trap, SPE, SPME, SBSE, SDME, membrane microextraction and MEPS.

• Extraction techniques for solid samples, including Soxhlet, "Soxtec", shake-flask, sonication, PFE, MAE, SFE and MSPD.

• Extraction techniques for air sampling, including whole air, enrichment approaches and desorption techniques.

• Pre-concentration approaches for post-extraction.

• Practical aspects for chromatographic analysis (GC and HPLC) of organic compounds.

• Quality assurance aspects of analysis.
• Health and safety considerations.

Key features include the following:

• Up-to-date information on the latest development in extraction techniques for organic compounds in environmental and food matrices.

• Written in the AnTS style, it is ideal for use as a self-study guide, as the basis of a taught course or guided reading for new “early-career” researchers.

• Includes a resources section to guide the reader to other sources of information.

_Extraction Techniques in Analytical Sciences_ should prove invaluable to students who are studying university-level courses – "undergraduate- to postgraduate-taught". The text will also prove invaluable as a key starting point for individuals undertaking applied research in the fields of analytical, bioanalytical, environmental and food sciences.

The _Analytical Techniques in the Sciences_ series of books provides coverage of all of the major analytical techniques and their application in the most important areas of physical, life and material sciences. Each text is presented in an open learning/distance learning style, in which the learning objectives are clearly identified. The reader's understanding of the material is constantly evaluated by the use of self-assessment and discussion questions. **Series Editor: David J. Ando**

---

**ABOUT THE AUTHOR**

John R. Dean took his first degree in Chemistry at the University of Manchester Institute of Science and Technology (UMIST), followed by an M.Sc. in Analytical Chemistry and Instrumentation at Loughborough University of Technology, and finally a Ph.D. and D.I.C. in Physical Chemistry at the Imperial College of Science and Technology (University of London). He then spent two years as a postdoctoral research fellow at the Food Science Laboratory of the Ministry of Agriculture, Fisheries and Food in Norwich, in conjunction with the Polytechnic of the South West in Plymouth (now the University of Plymouth). His work there was focused on the development of directly coupled high performance liquid chromatography and inductively coupled plasma–mass spectrometry methods for trace element speciation in foodstuffs. This was followed by a temporary lectureship in Inorganic Chemistry at Huddersfield Polytechnic (now the University of Huddersfield). In 1988, he was appointed to a lectureship in Inorganic/Analytical Chemistry at Newcastle Polytechnic (now Northumbria University). This was followed by promotion to Senior Lecturer (1990), Reader (1994), Principal Lecturer (1998) and Associate Dean (Research) (2004). He was also awarded a personal chair in 2004. In 2008 he became the Director of The Graduate School at Northumbria University as well as Professor of Analytical and Environmental Sciences in the School of Applied Sciences.
In 1998, he was awarded a D.Sc. (University of London) in Analytical and Environmental Science and was the recipient of the 23rd Society for Analytical Chemistry (SAC) Silver Medal in 1995. He has published extensively in analytical and environmental science. He is an active member of The Royal Society of Chemistry (RSC) Analytical Division, having served as a member of the Atomic Spectroscopy Group for 15 years (10 as Honorary Secretary) as well as a Past Chairman (1997–1999). He has served on the RSC Analytical Division Council for three terms and is a former Vice-President (2002–2004), as well as a past-Chairman of the North-East Region of the RSC (2001–2003).