

1. Record Nr.	UNINA9910877256503321
Titolo	Determination of trace elements // edited by Zeev B. Alfassi
Pubbl/distr/stampa	Rehovot, Israel, : Balaban Publishers Weinheim ; ; New York, : VCH, c1994
ISBN	1-281-75877-9 9786611758776 3-527-61577-6 3-527-61576-8
Descrizione fisica	1 online resource (623 p.)
Altri autori (Persone)	AlfassiZeev B
Disciplina	543
Soggetti	Trace elements - Analysis Trace elements - Speciation
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Errata sheet laid in.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Determination of Trace Elements; Contents; 1. Systematic errors in trace analysis; 1.1 Introduction; 1.1.1 General aspects of extreme trace analysis; 1.1.2 Direct instrumental determination methods; 1.1.3 Multi-stage procedures; 1.1.4 Further general important statements; 1.2 Systematic errors and their avoidance; 1.2.1 Volatilization; 1.2.2 Adsorption; 1.2.3 Blanks from vessels, vessel materials and working tools; 1.2.4 Blanks from the reagents; 1.2.5 Blanks from airborne dust; 1.2.6 Contamination by sample handling; 1.2.7 Problems due to changes of the valency state 1.3 Systematic errors during the analytical procedure 1.3.1 Sampling, sample storage and Pretreatment; 1.3.2 Decomposition; 1.3.3 Separation; 1.4 Basic rules for the recognition and elimination of systematic errors; 1.5 Conclusion; 2. Limits of detection and accuracy in trace elements analysis; 2.1 Introduction; 2.2 Errors in analytical results; 2.3 Accuracy; 2.4 Measuring trace concentrations; 2.5 The problem of detection; 2.5.1 Random error of blank responses; 2.5.2 Errors of the first kind - the critical level (a posteriori detection) 2.5.3 Errors of the second kind - the limit of detection (a priori detection) 2.5.4 Limits to the use of the definitions of Lc and LD; 2.5.5

Regression theory approaches to the problem of detection; 2.6 Practical applications; 2.7 Reporting results at small concentrations; 2.8 Conclusions and recommendations; Sampling and sample preparation; 3.1 Introduction; 3.2 Changes in trace element composition; 3.2.1 Element specific changes; 3.2.2 Sample specific changes; 3.3 Pre-sampling considerations; 3.4 Aspects of sampling; 3.4.1 Establishment of analytical control
3.4.2 Sampling error in a test portion
3.4.3 Uniformity of laboratory samples; 3.4.4 Uniformity of subsamples; 3.4.5 The gross sample; 3.5 Sample decomposition; 4. Separation and preconcentration of trace elements; 4.1 Separation and preconcentration of trace elements by coprecipitation; 4.1.1 Introduction; 4.1.2 Mechanism; 4.1.3 Coprecipitation with inorganic precipitants; 4.1.4 Coprecipitation with organic collectors; 4.2 Separation and preconcentration of trace elements by flotation; 4.2.1 Introduction; 4.2.2 Principle; 4.2.3 General procedures
4.3 Preconcentration and separation of trace elements by solvent extraction
4.3.1 Introduction; 4.3.2 Extraction of trace elements; 4.4 Separation and preconcentration of trace elements by ion-exchange; 4.4.1 Introduction; 4.4.2 Ion-exchange resins; 4.4.3 Equilibrium and selectivity; 4.4.4 Practical column operation; 4.4.5 Preconcentration; 4.4.6 Ion chromatography; 4.5 Separation and preconcentration by sorption; 4.5.1 Introduction; 4.5.2 Activated carbon; 4.5.3 Porous polymers; 4.5.4 Complex-forming adsorbents; 4.5.5 Natural polymers
5. Determination of trace elements by atomic absorption spectrometry

Sommario/riassunto

The best way to determine trace elements! This easy-to-use handbook guides the reader through the maze of all modern analytical operations. Each method is described by an expert in the field. The book highlights the advantages and disadvantages of individual techniques and enables pharmacologists, environmentalists, material scientists, and food industry to select a judicious procedure for their trace element analysis.
