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Nota di contenuto	Environmental Sampling for Trace Analysis; Contents; List of Contributors; Part I: Historical Aspects; 1 History of Sampling Demonstrated on the Ore Mining Industry - Empirical and Theoretical Approaches; Part II: General Aspects; 2 General Aspects of Environmental Sampling; 2.1 Introduction; 2.2 Terms and Definitions; 2.3 Aspects of Sampling; 2.3.1 Location, Place, and Position of Sample Removal; 2.3.2 Size, Quantity, and Volume of the Sample; 2.3.3 Number of Samples to be Taken; 2.3.4 Time, Duration, and Frequency of Sampling; 2.3.5 Homogeneity of the Sample 2.3.6 Contamination of the Sample2.3.7 Losses in the Sample; 2.3.8 Sample Storage and Conservation; 2.4 Guidelines and Norms; 2.4.1 Quality Assurance; 2.4.2 Environmental Protection; 2.5 References; 2.6 Appendix; 3 Trace Elements Need Trace Analysis; 3.1 Problems of Trace Element Analysis; 3.1.1 Introduction; 3.1.2 Problems of Biological Analysis; 3.1.3 Indicator Organs in Biological Evaluation; 3.2 The Importance of Trace Elements; 3.2.1 Introduction; 3.2.2 Criteria of Essentiality and Beneficiality; 3.2.3 Critcria of Toxicity; 3.2.4 Changes

in Element Concentrations

3.2.5 The Importance of Trace Elements in the Environment3.2.6 Interactions between Differcnt Elements; 3.2.7 The Importancc of Interdisciplinary Trace Element Research; 3.3 References; 4 Error Estimation in Environmental Sampling and Analysis; 4. I Introduction; 4.2 Basic Concepts and Terminology; 4.3 Sampling Error in Context; 4.4 Methods for Estimating Quality of Measurements; 4.4.1 Measuring Analytical Precision; 4.4.2 Measuring Sampling Precision; 4.4.3 Targets for Acceptable Levels of Prccision in Sampling and Analysis; 4.4.4 Measuring Analytical Bias; 4.4.5 Estimating Sampling Bias
4.5 Targets for Acceptable Levels of Bias in Sampling and Analysis4.6 Conclusions; 4.7 References; 5 Estimation with Varying Detection Limits; 5.1 Introduction; 5.2 Methodology; 5.2.1 The One-Dimensional Case; 5.2.2 The Bivariate Case; 5.3 Examples; 5.4 Discussion; 5.5 References; 5.6 Appendix; Part III : Examples for Sampling; A. Air; 6 Particle and Gas Measurements on Filters; 6.1 Introduction; 6.2 Filter Analysis Methods; 6.2.1 Mass; 6.2.2 Elements; 6.2.3 Water Soluble Ions; 6.2.4 Organic and Elemental Carbon; 6.3 Filter Media; 6.4 Aerosol Sampling Systems; 6.4.1 Size-Selective Inlets
6.4.2 Sampling Surfaces6.4.3 Filter Holders; 6.4.4 Pumps and Flow Controllers; 6.4.5 Sampler Configurations; 6.5 Sampling and Analysis Procedures; 6.6 Summary; 6.7 References; 7 Organic Gas Sampling; 7.1 Introduction; 7.2 Whole-Air Sampling; 7.2.1 Sampling Media Selection and Preparation; 7.2.2 Sampling; 7.2.3 Storage and Transport; 7.3 Preconcentration Methods; 7.3.1 Preconcentration on Nonselective Solid Adsorbents; 7.3.1.1 Sampling Media Selection and Preparation; 7.3.1.2 Sampling; 7.3.1.3 Storage and Transport; 7.3.2 Selective Methods of Compound Preconcentration
7.3.2.1 Sampling Media Selection and Preparation

Sommario/riassunto

Often too little attention is given to the sampling before and after actual instrumental measurement. This leads to errors, despite increasingly sensitive analytical systems.This is one of the first books to pay proper attention to representative sampling. It offers an overview of the most common techniques used today for taking environmental samples. The techniques are clearly presented, yield accurate and reproducible results and can be used to sample- air- water- soils and sediments- plants and animals.A comprehensive handbook, this volume provides an exc