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Calibration)1.2.1 Establishment of an Analytical Range; 1.2.2 Preparation of Standard Samples; 1.2.3 Determination of the Calibration Function and Process Data; 1.2.3.1 Process Data for the Linear Calibration Function; 1.2.3.2 Process Data for the Second-Order Calibration Function; 1.2.3.3 Calculating Analytical Results with the Aid of the Calibration Function; 1.2.4 Verification of the Fundamental Calibration; 1.2.4.1 Verification of Linearity; 1.2.4.2 Verification of Precision; 1.3 Analyses at Very Low Concentrations 1.3.1 Decision Limit [34, 120, 132]1.3.2 Determining the Minimum Detectable Value [34, 120]; 1.3.2.1 Minimum Detectable Value, Determined Using the Distribution of Blank Values; 1.3.2.2 Minimum Detectable Value, Obtained Using the Calibration Function; 1.3.3 Limit of Quantification [34]; 1.3.4 Quick Estimation; 1.3.5 Estimation of the Decision Limit and Limit of Quantification Using the S/N Ratio; 1.4 Validation of Individual Process Steps and Examination of Matrix Influences; 1.4.1 Systematic Errors; 1.4.1.1 Constant Systematic Errors, Additive Deviations 1.4.1.2 Proportional Systematic Errors, Multiplicative Deviations1.4.2 Establishment and Assessment of the Recovery Function; 1.4.2.1 Prerequisites for the Interpretation of the Recovery Function; 1.4.2.2 Testing for Systematic Errors; 1.4.3 Application of the Recovery Function; 1.4.3.1 Checking Individual Process Steps; 1.4.3.2 Determination of the Recovery Function to Prove the Influence of a Matrix; 1.5 Additional Statistical Methods; 1.6 Use of Internal Standards [50]; 1.6.1 Definition, Purpose; 1.6.2 Conditions and Limitations of the Use of Internal Standards; 1.6.3 Procedure 1.7 Preparing for Routine Analysis1.7.1 Examination of the Time Dependency of Measured Values; 1.7.1.1 Comparison of the "Within Batch" Standard Deviation (s(w)) with the "Between Batches" Standard Deviation (s(b)) [215]; 1.7.1.2 Determining the Need for Daily Adjustment of Analytical Equipment; 1.7.1.3 The Trend Test; 1.8 Summary of the Results of Phase I (Process Development): Documentation; 2 Phase II: An Analytical Process Becomes Routine; Preparative Quality Assurance; 2.1 Introduction; 2.1.1 Objective of Phase II; 2.1.2 Execution of Phase II; 2.1.3 Progression of Phase II 2.1.4 Results of Phase II

Sommario/riassunto

This best-selling title both in German and English is now enhanced by a new chapter on the important topical subject of measurement uncertainty, plus a CD-ROM with interactive examples in the form of Excel-spreadsheets. These allow readers to gain an even better comprehension of the statistical procedures for quality assurance while also incorporating their own data. Following an introduction, the text goes on to elucidate the 4-phase model of analytical quality assurance: establishing a new analytical process, preparative quality assurance, routine quality assurance and external analytical
