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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	A Primer on Experiments with Mixtures; Contents; Preface; 1. Introduction; 1.1 The Original Mixture Problem; 1.2 A Pesticide Example Involving Two Chemicals; 1.3 General Remarks About Response Surface Methods; 1.4 An Historical Perspective; References and Recommended Reading; Questions; Appendix 1A: Testing for Nonlinear Blending of the Two Chemicals Vendex and Kelthane While Measuring the Average Percent Mortality (APM) of Mites; 2. The Original Mixture Problem: Designs and Models for Exploring the Entire Simplex Factor Space; 2.1 The Simplex-Lattice Designs; 2.2 The Canonical Polynomials

2.3 The Polynomial Coefficients As Functions of the Responses at the Points of the Lattices; 2.4 Estimating The Parameters in the  $\{q, m\}$  Polynomials; 2.5 Properties of the Estimate of the Response  $y(x)$ ; 2.6 A Three-Component Yarn Example Using A  $\{3, 2\}$  Simplex-Lattice Design; 2.7 The Analysis of Variance Table; 2.8 Analysis of Variance Calculations of the Yarn Elongation Data; 2.9 The Plotting of Individual Residuals; 2.10 Testing the Degree of the Fitted Model: A Quadratic Model or Planar Model?; 2.11 Testing Model Lack of Fit Using Extra Points and Replicated Observations; 2.12 The Simplex-Centroid Design and Associated Polynomial Model; 2.13 An Application of a Four-Component Simplex-Centroid Design: Blending Chemical Pesticides for Control of Mites; 2.14 Axial Designs; 2.15 Comments on a Comparison Made Between An Augmented Simplex-Centroid Design and a Full Cubic Lattice for Three Components Where Each Design Contains Ten Points; 2.16 Reparameterizing Scheffé's Mixture Models to Contain A Constant (0) Term: A Numerical Example; 2.17 Questions to Consider at the Planning Stages of a Mixture Experiment; 2.18 Summary; References and Recommended Reading

Questions

Appendix 2A: Least-Squares Estimation Formula for the Polynomial Coefficients and Their Variances: Matrix Notation; Appendix 2B: Cubic and Quartic Polynomials and Formulas for the Estimates of the Coefficients; Appendix 2C: The Partitioning of the Sources in the Analysis of Variance Table When Fitting the Scheffé Mixture Models; 3. Multiple Constraints on the Component Proportions; 3.1 Lower-Bound Restrictions on Some or All of the Component Proportions; 3.2 Introducing L-Pseudocomponents; 3.3 A Numerical Example of Fitting An L-Pseudocomponent Model; 3.4 Upper-Bound Restrictions on Some or All Component Proportions; 3.5 An Example of the Placing of an Upper Bound on a Single Component: The Formulation of a Tropical Beverage; 3.6 Introducing U-Pseudocomponents; 3.7 The Placing of Both Upper and Lower Bounds on the Component Proportions; 3.8 Formulas For Enumerating the Number of Extreme Vertices, Edges, and Two-Dimensional Faces of the Constrained Region; 3.9 McLean and Anderson's Algorithm For Calculating the Coordinates of the Extreme Vertices of a Constrained Region; 3.10 Multicomponent Constraints; 3.11 Some Examples of Designs for Constrained Mixture Regions: CONVRT and CONAEV Programs

## Sommario/riassunto

The concise yet authoritative presentation of key techniques for basic mixtures experiments. Inspired by the author's bestselling advanced book on the topic, *A Primer on Experiments with Mixtures* provides an introductory presentation of the key principles behind experimenting with mixtures. Outlining useful techniques through an applied approach with examples from real research situations, the book supplies a comprehensive discussion of how to design and set up basic mixture experiments, then analyze the data and draw inferences from results. Drawing from his extensive experi