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| Nota di contenuto | Experiments with Mixtures: Designs, Models, and the Analysis of Mixture Data; Contents; Preface to the Third Edition; Preface to the Second Edition; 1. Introduction; 1.1. The Original Mixture Problem; 1.2. General Remarks About Response Surface Methods; 1.3. A Factorial Experiment or a Mixture Experiment?; 1.4. An Historical Perspective; References and Recommended Reading; Questions; 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<br>2.3. The Polynomial Coefficients as Functions of the Responses at the Points of the Lattices2.4. 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. Some Comments on the Use of Check |

Points for Testing Model Lack of Fit

2.12. A Numerical Example Illustrating the Use of Check Points for Testing Lack of Fit2.13. The Simplex-Centroid Design and the Associated Polynomial Model; 2.14. An Application of a Four-Component Simplex-Centroid Design. Blending Chemical Pesticides for Control of Mites; 2.15. Axial Designs; 2.16. 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; 2.17. Reparameterizing Scheffe's Mixture Models to Contain a Constant (ß0) Term: A Numerical Example
2.18. Questions to Consider at the Planning Stages of a Mixture Experiment2.19. Summary; References and Recommended Reading; Questions; Appendix 2A. Least-Squares Estimation Formulas 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 Scheffe Mixture Models; 3. The Use of Independent Variables; 3.1. Transforming from the q Mixture Components to q-1 Mathematically Independent Variables
3.2. A Numerical Example: Sensory Flavor Rating of Fish Patties3.3. Defining a Region of Interest Inside the Simplex: An Ellipsoidal Region; 3.4. A Numerical Illustration of the Inverse Transformation from the Design Variables to the Mixture Components; 3.5. Enlarging the Unit Spherical Region of Interest; 3.6. Some Discussion on Design Strategy When Fitting Response Surfaces; 3.7. Rotatable Designs; 3.8. A Second-Order Rotatable Design for a Four-Component System; 3.9. Defining a Cuboidal Region of Interest in the Mixture System; 3.10. Summary; References and Recommended Reading; Questions
Appendix 3A. An Alternative Transformation from the Mixture Component System to the Independent Variable System

Sommario/riassunto

The most comprehensive, single-volume guide to conducting experiments with mixtures""If one is involved, or heavily interested, in experiments on mixtures of ingredients, one must obtain this book. It is, as was the first edition, the definitive work.""-Short Book Reviews (Publication of the International Statistical Institute)""The text contains many examples with worked solutions and with its extensive coverage of the subject matter will prove invaluable to those in the industrial and educational sectors whose work involves the design and analysis of mixture experiments."