

Preface to the Third Edition

Following the very good acceptance of the second edition of *Rheology of Fluid and Semisolid Foods: Principles and Applications*, it is an honor and a pleasure to present the third edition.

Again, the book is divided into eight chapters: Chap. 1—Introduction: Food Rheology and Structure, Chap. 2—Flow and Functional Models for Rheological Properties of Fluid Foods, Chap. 3—Measurement of Flow and Viscoelastic Properties, Chap. 4—Rheology of Food Gum and Starch Dispersions, Chap. 5—Rheological Behavior of Processed Fluid and Semisolid Foods, Chap. 6—Rheological Behavior of Food Gels, Chap. 7—Role of Rheological Behavior in Sensory Assessment of Foods and Swallowing, and Chap. 8—Application of Rheology to Fluid Food Handling and Processing.

Several changes have been incorporated in this third edition and these revisions should help readers better appreciate the important role that rheological properties play in food science, as well as to utilize them to characterize foods. The new topics covered in the second edition have been listed in the preface of that edition. In the third edition, the contents of the second edition have been left intact. Additional topics covered in the 3rd edition include: In Chap. 1, a section on microstructure in general and on nanometer-scale milk protein fibrils together with their quantitative characterization in terms of persistence and contour lengths. In Chap. 2, a section on the phase diagram of a colloidal glass of hard spheres and its relationship to milk protein dispersions were added. Additions in Chap. 3 include, sections on Microrheology, including detailed descriptions of single particle and multiparticle micro rheological measurements, and Diffusive Wave Spectroscopy. In Chap. 4, a short section on starch spherulites was added. Because the Bostwick consistometer is used extensively for quality control of pureed foods, e.g., baby foods, in Chap. 5, a section on correlation of Bostwick consistometer data in terms of property-based dimensionless groups was added. Chapter 6 contains a new section on the effect of calcium on the morphology and functionality of whey protein nanometer-scale fibrils. In Chap. 7, it was pointed out that the roles of tribology and rheology are considered for the sensory perception of foods.

My association with the Riddet Institute, Massey University, NZ, helped shape the changes I made in this third edition. I thank Prof. Harjinder Singh for inviting me to work at the Riddet Institute, 2007–2011. My special thanks to Dr. Simon Loveday for valuable collaboration. Again, the mistakes in this book are mine and I hope that many of them can be corrected in a future edition.

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