

Food Packaging

Principles and Practice

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Preface to the Third Edition

Although it is only seven years since the second edition was completed, there have been significant developments in food packaging that warrant a third edition. This edition has been substantially rewritten, updated and extended to include the many developments in food packaging that have taken place since the second edition was published.

Having used the second edition as the course notes for workshops attended by nearly 600 people around the world, I have gained a good appreciation of which areas work well and which are in need of greater clarification and/or amplification. All the worked examples have been changed and new examples added where appropriate. As well, all the references have been updated and now number more than 1000, of which almost two-thirds have been published since 2005. There is also a 64% increase in the number of figures.

Biobased packaging has moved to center stage since the second edition was written. Therefore, Chapter 3 has been expanded to reflect this, becoming the longest chapter in the book; it includes a new section on bionanocomposites. The chapters on optical and mechanical properties of plastics, which appeared in the first edition, have, by popular request, been combined with permeability properties to form a new Chapter 4. In Chapter 5, the section on metallization has been expanded to include details of new coating methods to improve the barrier properties of plastic and paper packaging, including atomic layer deposition, which has recently been commercialized. As well, a major new section on the application of nanoclays to improve the barrier properties of plastic packaging has been added. The section in Chapter 5 on heat sealing, together with the section on closures for glass from Chapter 8, has been moved to a new Chapter 10 which also includes fresh sections on closures for plastic and composite containers in addition to recent research on openability and consumer strength and dexterity.

Other changes include a new section on the packaging of vegetable oils (in particular olive oil) and an update on legislative and safety aspects of food packaging in an attempt to do justice to the increasing regulatory and public interest in food contact materials such as BPA and phthalates and the associated issues of estrogenicity and risk assessment. The section on migration from the first edition has been added in abbreviated form to this chapter. The final chapter has been expanded in two key areas to reflect the huge increase in interest and published research in this area since the second edition was written: life cycle assessment (including carbon footprinting) and sustainability.

It would not have been possible to complete this book without assistance, encouragement and helpful advice from a number of people. I would especially like to thank the following: David Clark, Ian Darby, Bruce Gunn, Gary Hodgson, Dr. Robert V. Holland, Professor John M. Krochta, Professor Dong Sun Lee, Dr. Roger D. MacBean, Dr. Pornchai Rachtanapun, Per O. Risman, Elina Rusko, Dr. Kevin C. Spencer, Professor Tetsuya Suzuki, Dr. Noemi Zaritzky and Dr. David A. Zumbrennen.

Once again, it is a real pleasure to acknowledge the tremendous assistance of my wife, Soozie, who has improved the look of the book by preparing all the artwork and assisting in numerous other ways: thank you so much.

In the expectation that this edition will be as popular as its predecessors, the possibility of a fourth edition is very real. Therefore, expressions of interest are invited from suitably qualified individuals who would like to be considered as coauthors for a fourth edition.

Finally, I would like to thank all those who provided feedback, constructive comments and suggestions for improvements on the second edition. I welcome further comments on this edition (including any errors which may have crept in), which I will be happy to consider in a fourth edition.

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