Edited by
Otto G. Piringer and Albert L. Baner

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Plastic Packaging

Interactions with Food and Pharmaceuticals

Second, Completely Revised Edition

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WILEY-VCH Verlag GmbH & Co. KGaA

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Further Reading

Elias, H.-G.

Macromolecules

Volume 1: Chemical Structures and Syntheses

2005
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Elias, H.-G.

Macromolecules

Volume 2: Industrial Polymers and Syntheses

2007
ISBN: 978-3-527-31173-6

Elias, H.-G.

Macromolecules

Volume 3: Physical Structures and Properties
2008
ISBN: 978-3-527-31174-3

Elias, H.-G.

Macromolecules

Volume 4: Applications of Polymers

2009

ISBN: 978-3-527-31175-0

Brennan, J. G.

Food Processing Handbook

2006
ISBN: 978-3-527-30719-7

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Preface

This second edition confirms that in an active field like the interaction of plastic packaging with food and pharmaceuticals such a book can only be a work in progress. In just seven years after the first edition was published enough significant new research and learning has taken place to necessitate an update. Most chapters in the second edition have been rewritten to reflect advances in the estimation of physical and chemical interaction parameters like diffusion and partition coefficients as well as new developments and methods for estimating diffusion and migration with user friendly software. We have also incorporated new state of the art material on permeation, migration testing, regulatory development and off-flavors.

The goal of the second edition remains to provide a practical and accessible treatment of plastic packaging interactions with food and pharmaceuticals that fills the gap between the many general food packaging books and ones that are very mathematical and theoretical.

The interaction between plastics and foods and pharmaceuticals remains a very active field and recent trends continue to shape research and development in this area. This makes it more important than ever to understand the interactions between food/pharmaceuticals and plastic packaging as plastic packaging usage and range of application continues to expand every year.

At the same time more plastics are being used there is increased regulatory scrutiny of all chemicals in general including those used in food packaging. No longer are chemicals being monitored and regulated just on the bases of their acute and chronic toxicities but also their environmental and endocrine disruption activities at trace levels far below those previously evaluated. Regulatory activity and chemical monitoring has been made easier and more widely available by affordable and increasingly powerful analytical techniques with the ability to detect ever lower levels of substances. These factors amount to more stringent control and monitoring of potential migration of substances from plastic packaging into foods and pharmaceuticals. Economic trends such as the growing global trade in packaging where some packaging is coming from markets with little food packaging chemical safety

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regulation and/or enforcement requires increased vigilance and monitoring of packaging sourced from these areas.

All these regulatory and economic trends are against a backdrop of increasing environmental, health and safety awareness among media savvy consumers. Today's consumers have many product choices available to them and consumer product companies must ensure the quality and safety of their food products or risk losing their business. Finally, there is an increasing desire for companies and consumers alike to operate and live in a more sustainable manner so that both are looking for ways to reduce, recycle and reuse plastic packaging and to substitute traditional petrochemical based plastics with newer biopolymer based plastics. All of these trends make an understanding of the interactions between plastics and food and pharmaceuticals critical to their optimal use and safety as packaging materials.

This book is surely not the last word on the subject of plastic packaging interaction and largely reflects the point of view of its authors. We do hope that this work will be of practical use to people concerned with plastic packaging interactions as well as providing a starting point and stimulation for continued research in this field.

December 2007

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