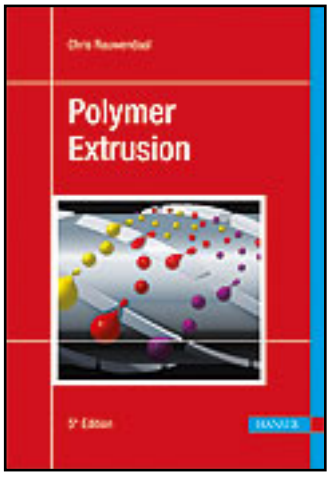
HANSER




Preface

Chris Rauwendaal

Polymer Extrusion

ISBN (Buch): 978-1-56990-516-6

For further information and order see

http://www.hanser-fachbuch.de/978-1-56990-516-6

or contact your bookseller.

# Preface to the Fifth Edition

It has been twelve years since the fourth edition of Polymer Extrusion was published and twenty six years since the book was first published. Extrusion technology continues to advance; as a result, a fifth edition is needed to keep the Polymer Extrusion book up to date and relevant.

New material has been added throughout the book. The general literature survey has been updated since several books on extrusion have been published since 2001. A new theory for predicting developing melt temperatures has been incorporated into Chapter 7. This theory allows accurate prediction of changes in melt temperature along the length of the extruder; complete analytical solutions are presented to the relevant equations. As a result, melt temperatures can be predicted without having to result to numerical techniques and computer simulation.

In Chapter 8, a new section on efficient extrusion of medical devices has been added. It covers good manufacturing practices in medical extrusion and automation. The effect of processing conditions and screw design on molecular degradation is covered in detail. Screws designs that minimize molecular degradation are discussed and explained.

In Chapter 11, the section on gels in extruded products has been expanded as this continues to be a problem experienced by many extrusion companies. There is also a new section on discolored specks in extruded products. In this section expressions are included that allow prediction of the incidence and frequency of specks or gels based on their frequency in the incoming raw material. Included is a discussion on new instruments that are now available to detect defects in pellets produced at the resin supplier with the ability to remove pellets with defects from the pellet stream.

Over the past five to ten years very high speed single screw extruders have been developed. These extruders are now commercially available and they are used by dozens of companies around the world. These machines run at speeds up to 1500 rpm; they achieve outputs that are about an order of magnitude above those of conventional extruders. This high speed single screw extruder technology is one of the most significant developments. Therefore, this topic has been added to the new edition in Chapter 2.

The author would like to thank Professor Jürgen Miethlinger and Michael Aigner from Johannes Kepler University in Linz, Austria for checking equations in Chapter 7 and finding a few mistakes; these have been corrected.

The author would also like to thank Cheryl Hamilton and Nadine Warkotsch at Carl Hanser Verlag for their encouragement and help in making the fifth edition a reality. The author is grateful for a long and fruitful relationship with Carl Hanser Verlag. Finally, I would like to extend a special thank you to my wife Sietske. She has supported and helped me in many ways for the past forty years. I am grateful for her love and support—I feel very fortunate to have a friend and spouse who makes life worth living.

*Chris Rauwendaal*
*Auburn, California*
*October 2013*