



Mechanics of Solid Polymers: Theory and Computational Modeling (Plastics Design Library)

By Jorgen S Bergstrom



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Very few polymer mechanics problems are solved with only pen and paper today, and virtually all academic research and industrial work relies heavily on finite element simulations and specialized computer software. Introducing and demonstrating the utility of computational tools and simulations, *Mechanics of Solid Polymers* provides a modern view of how solid polymers behave, how they can be experimentally characterized, and how to predict their behavior in different load environments.

Reflecting the significant progress made in the understanding of polymer behaviour over the last two decades, this book will discuss recent developments and compare them to classical theories. The book shows how best to make use of commercially available finite element software to solve polymer mechanics problems, introducing readers to the current state of the art in predicting failure using a combination of experiment and computational techniques. Case studies and example Matlab code are also included.

As industry and academia are increasingly reliant on advanced computational mechanics software to implement sophisticated constitutive models – and authoritative information is hard to find in one place - this book provides engineers with what they need to know to make best use of the technology available.

- Helps professionals deploy the latest experimental polymer testing methods to assess suitability for applications
- Discusses material models for different polymer types
- Shows how to best make use of available finite element software to model polymer behaviour, and includes case studies and example code to help engineers and researchers apply it to their work

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- Sales Rank: #2066297 in eBooks
- Published on: 2015-07-11
- Released on: 2015-07-11
- Format: Kindle eBook

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