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Advanced Polymer Simulation and Processing

Edited by: Célio Pinto Fernandes , Salah Aldin Faroughi , Luís L. Ferrás and Alexandre M. Afonso

Polymer-processing techniques are of the utmost importance for producing polymeric parts. They must produce parts with the desired qualities, which are usually related to mechanical performance, dimensional conformity, and appearance. Aiming to maximize the overall efficiency of the polymer-processing techniques, advanced modeling codes along with experimental measurements are needed to simulate and optimize the processes.

Thus, this reprint exploits the digital transformation of the plastics industry, both through the creation of more robust and accurate modeling tools and the development of cutting-edge experimental techniques. Furthermore, it addresses advanced topics, such as crystallization during the solidification processes, prediction of fiber orientation in the cases of short and long fiber composites, prediction of the foaming process (such as microcellular foaming), and flow instabilities by including viscoelastic constitutive equations.

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