

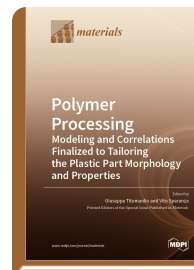
Special Issue Reprint

Polymer Processing: Modeling and Correlations Finalized to Tailoring the Plastic Part Morphology and Properties

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The analysis of polymer processing operations is a wide and complex subject; during polymer processing, viscoelastic fluids are forced to deform into desired geometries using non-homogeneous velocity and temperature fields down to solidification. The objective of analysis is the identification of processing conditions, which are finalized in the optimization of product final properties, which, in turn, are determined by the final part morphology. Depending on the operating conditions, the properties of the final part can change more than one order of magnitude. Properties of interest include the mechanical, optical, barrier, permeability, and biodegradability, and any other property of practical relevance including the characteristics of the surfaces as its finishing and wettability, which are connected to one another. The scope of this Special Issue is to select progress in or reviews of the understanding/description of the phenomena involved along the chain of processing–morphology–properties. Along this virtual chain, modeling may be a useful approach, and within the objective of understanding fundamental aspects, it may also be relevant to compare selected characteristics of the process and the material with the characteristics of the resulting morphology and then with the properties of the final part. This approach suggests the title: “Polymer Processing: Modeling and Correlations Finalized to Tailoring the Plastic Part Morphology and Properties”.

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