



*polymers*



*Special Issue Reprint*

## **Polymeric Foams**

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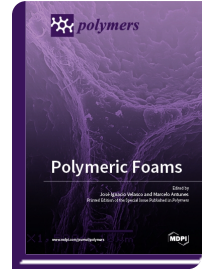
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Advances in nanotechnology have boosted the development of more efficient materials, with emerging sectors (electronics, energy, aerospace, etc.) demanding novel materials to fulfill the complex technical requirements of their products. This is the case of polymeric foams, which may display good structural properties alongside functional characteristics through a complex composition and (micro)structure in which a gas phase is combined with rigid ones, mainly based on nanoparticles, dispersed throughout the polymer matrix. In recent years, there has been an important impulse in the development of nanocomposite foams, extending the concept of nanocomposites to the field of cellular materials. This, alongside developments in new advanced foaming technologies which have allowed the generation of foams with micro, sub-micro, and even nanocellular structures, has extended the applications of more traditional foams in terms of weight reduction, damping, and thermal and/or acoustic insulation to novel possibilities, such as electromagnetic interference (EMI) shielding. This Special Issue, which consists of a total of 22 articles, including one review article written by research groups of experts in the field, considers recent research on novel polymer-based foams in all their aspects: design, composition, processing and fabrication, microstructure, characterization and analysis, applications and service behavior, recycling and reuse, etc.



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