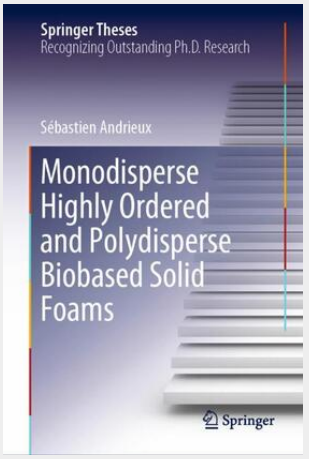
Andrieux

Monodisperse Highly Ordered and Polydisperse Biobased Solid Foams



This book discusses the synthesis of chitosan-based solid foams using foam templating. Solid foams with pore sizes between a few micrometres and a few millimetres are widely used in a range of established and emerging applications, including filtration, catalysis, sound and thermal insulation, human protection, and tissue engineering. They are lightweight with large surface-to-volume ratios, and have excellent mechanical, acoustic, and thermal properties. However, most foaming processes are extremely complex, and there remains a lack of sound scientific understanding of—and therefore control over—the parameters that determine the properties of the material. One route towards tailor-made solid foams is liquid foam templating, where the liquid foam is generated first (with the desired structure) before being solidified into a solid foam with the desired structure. This book describes how liquid foam templating can be used to synthesise monodisperse solid foams as well as solid foamswith a tuneable polydispersity.

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