
So close but ultimately so different - micromechanics reveals the contrasted responses of synthetic and biosourced polyesters

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Résumé

Biobased polymers differ from their synthetic counterparts by key chemical differences. Innovative formulations and processes are therefore necessary to manufacture reliable biobased polymeric products and will require in depth investigations of their properties. Here, we present a comparison between the mechanical response of a traditional synthetic polyester and a biosourced equivalent. We show that, although superficially their properties look quite similar, a key property of the biosourced polymer, the yield stress, strongly depends upon the environment, which dramatically affects the usability of the material. We also provide an explanation in terms of the specific chemistry of the chain.

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