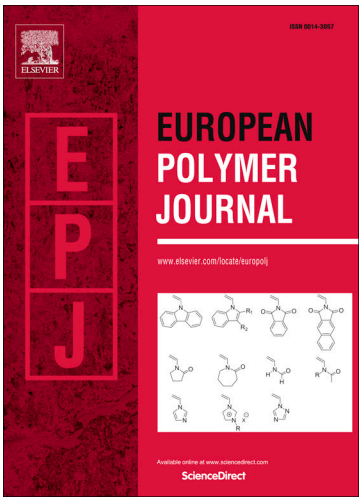

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Synthesis and characterization of novel dendritic macroporous monoliths

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Abstract

The monoliths have changed the paradigm of the supports for applications in different fields, such as chromatography, catalysis, combinatorial chemistry, enzymatic bioreactors, among other. Particularly, the dendronized monoliths are a good alternative of hybrid material due to multivalency. Dendronized macroporous monoliths were prepared from a Newkome-type dendron (Behera´s amine) and classical monomers such as NAT, AAm, AAc, and (BIS) as cross-linker. The monoliths have been thoroughly characterized using infrared microscopy, scanning electron microscopy (SEM), thermogravimetric analysis and swelling index. For the reaction, several factors such as monomer, solvent, porogen and their ratios were analysed. The morphological characteristics of monoliths were mainly managed by the conditions of the synthesis way, offering the opportunity to tailor pore size, surface characteristics and porosity. The results demonstrated a compromise between both the dendronized degree and the dynamic in the formation of globules and clusters during the polymerization reaction. It was also demonstrated that the porosity properties were governed by the dendritic moiety of the monoliths.

Keywords: dendritic monomer, dendronized polymers, monoliths.