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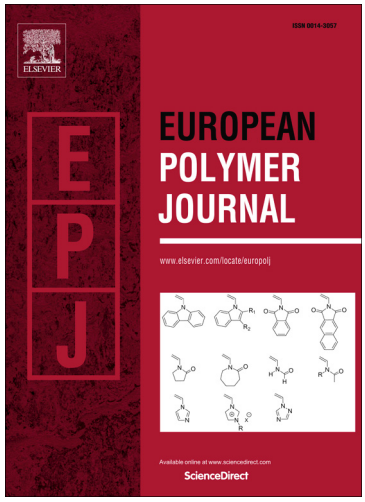

Review

Progress in designing poly(amide imide)s (PAI) in terms of chemical structure, preparation methods and processability

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Progress in designing poly(amide imide)s (PAI) in terms of chemical structure, preparation methods and processability

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ABSTRACT

Recently, there has been a considerable progress in the development of poly(amide imide)s (PAIs) for various commercial applications (such as gas separation, nanofiltration, osmotic power generation, pervaporation, etc.) due to their outstanding characteristics, combining high mechanical strength, melt processability, thermal resistance and wide chemical resistance. The superior properties of PAIs arise from their unique chemical structure, which contains both the amide and imide functionalities in the polymer backbone. Numerous methods have been developed to prepare PAIs with different characteristics and structural combinations aiming to improve their properties in order to extend their application fields. This article attempts to review and integrate relevant literature sources on the preparation/modification of various kinds of PAIs based on the chemical structure, reaction conditions, synthetic procedures and applications, with a special emphasis being put on the utilized monomers.

Keywords: poly(amide imide)s, synthesis, advanced methods, monomers, nanocomposites

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