

عنوان مقاله:

Thermo-mechanical characterization of post-consumer recycled high impact polystyrene from disposable cups:
Influence of the number of processing cycles

محل انتشار:

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خلاصه مقاله:

In this study, the effect of six successive recycling cycles of the recycled material including high impact polystyrene disposable cups on tensile properties, glass transition temperature, flexural, impact strength tests and fluidity were studied. It has been found that after increasing recycling, the molar mass and the viscosity decrease (a slight increase of melt flow index) until the fifth cycle; the maximum yielding stress decreased due to material brittleness. The impact strength has only been relatively influenced by a 1۷% increase, whereas the elongation at break and the Young's modulus dropped with reprocessing cycles. Glass transition temperature has undergone a remarkable decrease: It dropped in a consistent way by the sixth cycle we measured a drop of almost ۱۱°C was compared to the virgin material, with a notable increase in flexural modulus and hardness. The resulted curves show the reliability of this material to be used after a specific number of processing in several industrial applications

کلمات کلیدی:

High impact polystyrene, Recycling, Reprocessing, Degradation

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