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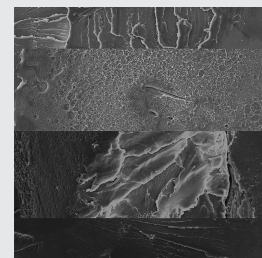
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HIPS resins are attained with *in situ* bulk polymerization toughened by one-pot SIBR. Nd-based catalysts generate St solution of SIBR with high 1,4-selectivity and low St content *in situ*. The resulting products are straightforward subject to free radical polymerization with initiators. Increasing the rubber fractions in HIPS resins are beneficial to enhance the impact strength while tensile strengths decrease. SEM analysis illustrates the fracture surface morphology of HIPS specimens. HIPS resins with high content of SIBR present ductile fracture behavior and shear deformation, revealing the incremental rubber matrix displays synergistic toughening effect of crazing. (DOI: 10.1002/app.43979)



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