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Abstract
Poly(styrene-co-methacrylic acid) (PSA) particles, which were prepared by soap-free polymerization, were used as template to produce hollow polyaniline (PANI) particles (ca. 220 nm) in this text. After the PSA cores were removed by using toluene extraction, the uniform hollow PANI particles were obtained. However, a few PSA residents remained on the surface of hollow PANI particles. When THF solvent were added to toluene as the extraction solvent, major part of PSA core would be removed from the core/shell particle. On the other hands, the conductivity of the hollow PANI is less than that of pristine PANI. In addition, the microwave absorption properties of the hollow PANI particles have shown a maximum reflection loss of - 32 dB as the hollow PANI particles were mixed as microwave absorbent within the epoxy resin. Additionally, we could changed the composition of particles core, poly(BA-co-MA-co-GMA-IDA) (PBMG), to directly form the polymer thin film by one step. Those PBMG/PANI composite films also have a maximum microwave reflection loss of - 30 dB.
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