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Abstract
A liquid rubber (CTBN) was used to modify the DGEBA-PMDA system. Meanwhile, in order to keep its Tg at a proper level, the PMMA was used to blend with the DGEBA-PMDA system. The various sample were prepared via a solution blending process and analyzed by relative instruments. The results illustrated that the Tg of the DGEBA-PMDA/CTBN system was decreased as the amount of CTBN was increased, but the elastic modulus of the system was increased as the amount of CTBN was increased. If the amount of CTBN was 5phr, the elongation at break of the DGEBA-PMDA/CTBN system was higher than that of others. If the amount of CTBN was too high, the phase separation between DGEBA-PMDA and CTBN was significantly. The DGEBA-PMDA/CTBN(5phr)/PMMA(15phr) system had the better flexibility, Tg, and mechanical properties. In the DGEBA-PMDA/PMMA system, an interesting phase inversion phenomenon was observed. If the amount of PMMA was higher than 30phr, PMMA became the continue phase (sea) and the epoxy (DGEBA-PMDA) became spheres (island). The particle size of the epoxy was decreased as the amount of PMMA was increased.
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