

Interfacial effect of organically modified clay on rheological and morphological properties of polypropylene and poly(ethylene-methacrylic acid) ionomer blend

_____, _____, _____,*

(ahnnet@snu.ac.kr*)

In this study, organically modified montmorillonite clays(OMMT) were added to the polypropylene and poly(ethylene-co-methacrylic acid) ionomer blend. Rheological properties, morphology and crystallization properties of the ternary composites were studied. In rheological tests, a threshold of mass ratio of ionomer and clay which affects storage modulus of the composites was found. Microstructure of the ternary composites reveals that the application of organoclay to blend induces encapsulated structure of clays. However, when more than critical amount of organoclay was applied, additional clays were localized at the interface. Wetting coefficients were calculated to show the affinity. These parameters well corresponded to morphology of the ternary blend. Also, selective localization of clay affects crystallization behavior of the ternary hybrids differently. To figure out the interfacial effect of the organoclay, experimental data were compared to theoretical blend values. In conclusion, selective localization of organoclay affects rheology and morphology of the hybrids due to its affinity and interfacial interaction of three components.