Influence of Catalyst on Mechanical Properties and Morphology of Epoxy/Polyamide/DDS/2E4MZ-CNS Reactive Blends

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In the present study, the characteristics of thermal and mechanical properties and morphology of epoxy/polyamide/DDS/2E4MZ-CNS reactive blends with various amount of polyamide were investigated. The amount of polyamide was 10, 20, and 30 phr and 2 phr of catalyst was added to the blend to cure at 170 ℃ for 30 min. By adding the catalyst, 2E4MZ-CNS, to the blend, the cure reaction occurred at a lower temperature. From the SEM images, it was found that the boundary of separated-phase was unclear and the phase was co-continuous. Without catalyst, however, the boundary of separated-phase was clear. The control of cure temperature and morphology could be achieved by using a proper catalyst and consequently the lap shear and peel strength increased by 20% and 50% respectively compared to the blend without catalyst.