

Thermal properties of different recycled acrylonitrile-butadiene rubber glove (NBRr) size and its blend ratios on SBR/NBRr blends

Abstract

The effects of SBR/NBRr blends on thermal properties of such thermal gravimetric analysis (TGA) and differential scanning calorimetry (DSC) were carried out. Results showed that by incorporating the smallest size NBRr provided more surface area to interact with SBR polymers thus increased the level of crosslink. TG thermograms shown by incorporating the smallest size NBRr in all ratios exhibit better thermal stability compared to large size NBRr. Due to many crosslinks formed with the incorporation of S1, hence at the end stage of degradation there were more cyclic and aromatic carbon formed during the rearrangement of the existing char. SBR/NBRr R05 with small particle sizes S3 and S2 showed similar crystallization temperature (T_c) at 37.1 °C. However by using S1, there was a conversion of T_c to heat capacity transition from high to low energy level at temperature 37.3 °C. Smaller size of NBRr showed better dispersion with SBR matrix hence the chances of crosslink form between SBR and NBRr is higher compared to using large size of NBRr.

Keywords — DSC, NBR, NBRr, SBR, TGA