

FT-IR and Morphology of Different Recycled Acrylonitrile-Butadiene Rubber Glove (NBRgr) Size and its Blend Ratios of SBR/NBRr Blends

Abstract

Recycling rubber waste contributes to a cleaner environment by using indestructible rubber discards as well as lowering production costs as reclaimed rubber is cheaper than virgin or natural rubber. Therefore, in this study, the properties of recycled acrylonitrile butadiene rubber glove (NBRgr) blending with styrene butadiene rubber (SBR) has been determined. The effects of SBR/NBRr blends on properties of such fourier transform infrared (FT-IR) and morphology properties were carried out. FT-IR analysis showed that SBR/NBRr R05 blended with the smallest size NBRr (S1) and showed most intense amine absorption at 1535 cm^{-1} . The intensity decreased by increasing the NBRr sizes. By incorporating the smallest size NBRr provided more surface area to interact with SBR polymers thus increased the level of crosslink. From scanning electron microscopy (SEM) observation on fatigue failure surface, the SBR/NBRr blended with the finest size of NBRr (S1) showed roughest matrix tearing compared to S2 and S3 indicated better fatigue propagation. At higher blend ratio (50/50), the SBR/NBRr blended with S2 and S3 exhibited a coarser and a poorer distribution of NBRr with SBR matrix which led to lower fatigue life.