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Natural rubber/styrene butadiene rubber/recycled nitrile glove (NR/SBR/rNBRg) ternary blend: Curing characteristics and swelling test

Abstract

Curing characteristics and swelling behavior of natural rubber/styrene butadiene rubber/recycled nitrile glove (NR/SBR/rNBRg) blends were investigated. Eleven composition ratio; 50/50/0, 50/40/10, 50/30/20, 50/20/30, 50/10/40, 50/0/50, 40/50/10, 30/50/20, 20/50/30, 10/50/40, and 0/50/50 of SMRL/SBR/rNBRg with the size of rNBRg ; 2.5 3.0 cm^2 were prepared by using two roll mill at room temperature. Cure characteristics such as scorch time,t_2, cure time,t_{90}, minimum torque, M_L, maximum torque, M_H, and swelling behavior of SMRL/SBR/rNBRg ternary blends were examined. Results indicated that the scorch time and maximum torque of the NR/SBR/rNBRg blends decreased with increasing rNBRg content. The minimum torque of the blends increased as rNBRg content increased. The cure time of NR/SBR/rNBRg blends show a unique trend, which are depending on the domain rubber content. The increment in rNBRg content decreased the crosslink density of NR/SBR/rNBRg blends.

Keywords; Crosslink Density, Curing Characteristic, Natural Rubber (NR), Recycled Nitrile Glove (rNBRg), Styrene Butadiene Rubber (SBR), Ternary Blend