

ABSTRACT

Zinc oxide neutralized maleated EPDM rubber is an ionic elastomer. Zinc stearate imparts some degree of reinforcement onto the ionic elastomer at room temperature. At elevated temperatures zinc stearate solvates the ionic domains and brings the ionomer to a melt flow state, when the ionomer can be processed like thermoplastics. Precipitated silica and high abrasion furnace carbon black fillers reinforce the ionic thermoplastic elastomer. Blends of zinc salt of ethylene methacrylic acid with zinc oxide neutralized m-EPDM rubber is a reprocessable thermoplastic-rubber blend composition which shows synergism in physical properties. The synergism is believed to be due to interfacial ionic crosslinks. Blends of ionomers based on zinc salts of maleated EPDM rubber and carboxylated nitrile rubber is a technologically compatible, reprocessable rubber-rubber blend. In this case also interfacial ionic bonds are believed to be responsible for the technological compatibility in the blend. Zinc oxide neutralized maleated-EPDM rubber having a high (75 wt %) ethylene content is a crystallizable ionomer. However, formation of ionomer causes reduction in crystallizability of the polymer. The ionomer can be reinforced under ambient conditions by zinc stearate and precipitated silica.

Key words : maleated EPDM rubber, ionomer, ionic thermoplastic elastomer, zinc stearate, HAF carbon black, precipitated silica, blend, zinc salt of poly(ethylene-co-methacrylic acid), carboxylated nitrile rubber, ionomeric polyblend, crystallinity, dynamic mechanical properties, infrared spectroscopy, physical properties, reprocessability.