

The effects of dynamic vulcanization in virgin polyethylene (vPE) / recycled polyethylene (rPE) / ethylene propylene diene terpolymer (EPDM) blends: Thermal properties and swelling behaviour

Abstract

The effects of dynamic vulcanization on the thermal properties and swelling behaviour of vPE/rPE/EPDM blends were studied. The discarded polyethylene used in the study was obtained from local wire insulation industry. The thermal properties and swelling behaviour of the blends were analyzed. Results show that increasing of sulfur loading had improved the thermal stability of the blends. The swelling percentage and swelling index of vPE/rPE/EPDM blends also decreased, inversely proportional to the increasing of sulfur loading. Thus, the increased incorporation of sulfur loading had improved the chemical and oil resistance of the blends.

Keywords

Dynamic vulcanization; rPE; Swelling behavior; Thermal properties; vPE