

# Effects of Dynamic Vulcanization on Thermal Properties of Calcium Carbonate Filled Polypropylene/Ethylene Propylene Diene Terpolymer Composites

## Abstract

In this study, dynamic vulcanization process was used to improve the thermal properties of calcium carbonate filled composites. The composites were prepared using a Z-blade mixer at 180°C and rotor speed 50rpm. Thermogravimetric analysis (TGA) and Differential scanning calorimetry (DSC) techniques were used to analyze the thermal properties of the composites. The vulcanized and unvulcanized PP/EPDM composites were filled by CaCO<sub>3</sub> at 0, 10, 20, 30, and 40%wt. Meanwhile, thermogravimetric analysis indicates that the total weight loss of PP/EPDM/CaCO<sub>3</sub> composites decreased with increasing filler loading. Dynamic vulcanized composites have higher thermal stability, while the crystallinity of PP/EPDM/CaCO<sub>3</sub> composites were increased as compared to unvulcanized composites. Therefore, the thermal properties were improved by the presence of dynamic vulcanization process.