

**PROPERTIES OF VULCANIZATES FROM BLENDS OF NATURAL RUBBER AND THIOGLYCOLIC ACID MODIFIED, EPOXIDIZED, LOW-MOLECULAR-WEIGHT NATURAL RUBBER FILLED WITH CARBONIZED RUBBER SEED SHELL**

**A. K. Akinlabi**

Department of Chemistry, Federal University of Agriculture, PMB 2240, Abeokuta, Ogun State, Nigeria

**Abstract**

Vulcanizates from blends of natural rubber and thioglycolic acid modified, epoxidized, low-molecular-weight natural rubber filled with mixtures of carbon black and carbonized rubber seed shell, with semiefficient sulfur vulcanization recipes, were critically investigated and characterized. The investigated properties were the processing and rheological properties (the cure rate, cure time, scorch time, total oscillating disc rheometry torque, and Mooney viscosity), physicomechanical and chemical properties, solvent resistance, solubility, and swelling properties. On the basis of the investigated properties, it was observed that the carbonized rubber seed shell acted as a plasticizer and not as a reinforcing filler such as carbon black. The replacement of carbon black with up to 20% carbonized rubber seed shell produced vulcanizates having processing advantages in time gain and energy consumption, with their physical, chemical, and mechanical properties around the acceptable level for natural rubber compounds but lower than the properties obtained for a 100% carbon black filled vulcanizate. © 2007 Wiley Periodicals, Inc. *J Appl Polym Sci* 2007.

**Keywords**

modification; processing; reinforcement; rheology; vulcanization