Study the Effect on Physical Properties of Rice Husk Ash and Carbon Black Filled Natural Rubber Vulcanizates

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Rice husk ash is mainly composed of silica and carbon black remaining from incomplete combustion. Both silica and carbon black have long been recognized as the main reinforcing fillers used in the rubber industry to enhance certain properties of rubber vulcanizates, such as Hardness, Resilience and tensile strength. In this study, two grades of rice husk ash (low- and high-carbon contents) were used as filler in natural rubber. Comparison was made of the reinforcing effect between rice husk ashes and carbon black. The effect of these fillers on cure characteristics and mechanical properties of natural rubber materials at various loadings, ranging from 0 to 45 pphr, was investigated. The incorporation of RHA into natural rubber improved curing properties, tensile strength and hardness of rubber compound. But decreased tear strength, abrasion resistance, and Young's modulus of the compound. However, RI-IA gave a better resilience property, and Elongation than that of carbon black. Altogether the rice husk ash filled rubber product gave cost reduction and comparable mechanical properties like carbon black fillers.

Keywords: Resilience, Abrasion, Young's Modulus

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