



Impact of hybrid fillers on the properties and performance of PCR tire tread compounds based on SBR

The tread is one of the most important tire components because, in addition to protecting the inner casing from road hazards, it is the only part of the tire that contacts the road surface, governing the primary tire performance. For the tread fabrication of passenger car radial (PCR) tires, styrene-butadiene rubber (SBR) is commonly utilized as a raw material. Various parameters influence the properties of tire tread compounds. In this study, the effects of hybrid filler ratio and SBR type on tire tread performance, i.e., wet grip, fuel-saving efficiency and abrasion resistance, were focused.

The results showed that although increasing the carbon black-to-silica ratio in the formulation had negative effects on wet grip, fuel-saving efficiency, and heat build-up, it improved abrasion resistance. A good balance of tire performance was at a CB ratio of 40 wt%. Solution-SBR provided better overall tire performance than emulsion-SBR, particularly in the silica-filled system.

Associated SDG goals are Industry, innovation and infrastructure (9), and Responsible consumption and production (12).

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Reference:

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