Enhancing Adhesion between layers of Babylon tyre

Abstract:
There are three types of adhesion difficulties faced by the Babylon Tyre manufactured: bonding the inner liner to the fabric cord, bonding the tread to the breaker bandage, and bonding the sidewall to the bead apex. We have investigated the adhesion between layers of tyre by using maleic anhydride (MA) in an elastomer while using phenolic resin, resorcinol, or novolak in another elastomer to understand the role of (MA) as an adhesion promoter. The cure rate slowed down when MA was added to the rubber compound, but changes in the physical properties were not significant. An improvement in adhesion was seen in presence of MA with phenolic resin (PH) and with (resorcinol) more than MA with novolak. Esterification reactions are the postulated mechanism for the observed promotion of adhesion.

Keywords: Adhesion, Maleic anhydride, peel strength