DEVELOPMENT OF A COST EFFECTIVE COMPOUND TO REDUCE PAH LEVELS IN SOLID WHEELS

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ABSTRACT

Tyre is one of the most important and abundant export products of dry rubber industry in Sri Lanka. Polycyclic aromatic hydrocarbons (PAHs) which amalgamated in to the rubber compound through ingredients of tyre compound are identified as carcinogenic compounds that must be limited to protect human health and the environment. Therefore, an investigation was carried out to develop cost effective compound to reduce PAH levels in solid wheels. The currently existing tyre compound was used as the control compound in the experimental design of Complete Random Design (CRD). Five treatment compounds were prepared by changing the amount of skim rubber and low PAH Reclaim rubber while all the other ingredients were constant. The physical properties; Specific Gravity, Hardness, Tensile Strength, Elongation at Break and Tear Strength were checked. The results revealed the treatment compound 2 which used (40 Phr) and skim rubber (60 Phr) showed the best properties compared to the existing specifications. Besides, the cost of production of the compound was reduced by incorporating reclaimed rubber. Therefore, the newly formulated compound can be used to achieve both cost reduction and PAH level reduction in the industry.

Key Words: PAHs, Reclaim Rubber, Skim Rubber, Compounding, Specific Gravity, Hardness, Tensile Strength, Elongation at Break, Tear Strength