INVESTIGATION OF THE TECHNICAL PROPERTIES OF THE TYRE RE - TREADING COMPOUND FORMULATED WITH RSS/SCRAP RUBBER BLENDS

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Submitted by
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ABSTRACT

Due to higher demand of petroleum and petroleum based synthetic rubbers, the price of Ribbed Smoked Sheets (RSS) has been gone up. Therefore, local rubber industries, particularly re-treading tyre industry has started replacing RSS grade partly with a cheaper scrap grade of Natural Rubber (NR) in their re-treading tyre compounds, in arbitrary ratios without considering the quality of tyre treads.

In the project work, the tyre re-treading compounds based on blends of (RSS) and scrap grade in different proportions are investigated to identify the most suitable blend for obtaining optimum technical properties. The first step of the study reveals that the blend having RSS and scrap rubber in the ratio 80 : 20 is the most suitable economical blend to obtain a balance of technical properties..

To get the optimum technical properties of the re-treading tyre compounds, the amount of carbon black should be added separately into the two types of rubber and prepared in the form of master batches, prior to mixing the two types of rubber together. Different weight ratios are used for the two portions and correspondingly different compounds are prepared.

The second step of the project work reveals that the addition of carbon black-oil mix should be made separately into each grade of rubber (of the chosen formulation from the first step of the project work), preferably 80% by weight to RSS and 20% by weight to scrap rubber, for optimum quality tyre treads

Further increase of carbon black in scrap rubber is observed to give deleterious effects on both, cure and vulcanisate properties, due to non uniform dispersion of carbon black in scrap, possibly due to higher loading of carbon black in scrap rubber.

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