USE OF COCONUT SHELL CHARCOAL DUST AS A FILLER IN THE RUBBER INDUSTRY

A DISSERTATION
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SYNOPSIS

COCONUT SHELL CHARCOAL DUST (CSCD) is a waste product in the production of activated carbon. The main objective of this research project is to determine the suitability of this waste product as a reinforcing filler in the rubber industry.

With this objective in mind, firstly the characteristic properties of CSCD which can have an influence on reinforcement were determined. These determinations show that CSCD resembles HAF (N 330), FEF (N 550), SRF (N 770) blacks and lamp black in certain respects.

The effect of CSCD as a filler in two non-polar rubber compounds namely NR (RSS-2) and SBR (1500); and a polar rubber compound NBR (medium) has been investigated by measuring the tensile properties, dead load hardness, vertical rebound resilience and volume abrasion loss of the vulcanisates.

Finally, the HAF (N 330) in car tyre tread formulation was partially and wholly replaced by CSCD and results of physical testing of these vulcanisates compared with the vulcanisates of the control compound containing 50 pphr of HAF. A comparision was also made with the requirements for car tyre treads as specified by Sri Lanka Tyre Corporation.

These results show that CSCD can be used as a reinforcing filler in rubber industry. However, it was not possible to carry out any ageing test due to limited time.

DEDICATED TO

MY PARENTS.

UOM Verified Signature

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