A PRELIMINARY INVESTIGATION ON THE USE OF METAL DERIVATIVES OF CASHEWNUT SHELL LIQUID AS ACTIVATORS IN SULPHUR VULCANIZATION OF NATURAL RUBBER

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Fatty acids and their metal salts are used as activators for sulphur vulcanisation of diene rubbers including natural rubber. It has been established that branched acids and some metal salts of higher fatty acids are more efficient than straight chain fatty acids and that a mixture of acids is more efficient than a single type of compound.

Anacardic acid is the main component of natural cashewnut shell liquid (CNSL) and the extraction/milling procedure adopted by Sri Lanka Cashew Corporation does not favour decarboxylation reaction and as such, the extracted liquid retains as high as 70% anacardic acid.

In the present study, cashewnut shell liquid was treated with sodium bicarbonate solution to convert the anacardic acid component to its sodium salt. Subsequently the mixture containing the soluble sodium salt was treated with a soluble salt solution of a metal to obtain its metal derivative. Metal derivatives synthesized include those of zinc, calcium, magnesium and aluminium. Their activity has been compared with that of stearic acid in ACS 1 formulation and in tyre tread formulations. The results obtained indicate that these compounds act as activators of rubber vulcanisation.