NETWORK STRUCTURES AND TECHNOLOGICAL PROPERTIES OF ROOM TEMPERATURE VULCANISATES

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Work done at Rubber Research Institute of Sri Lanka has shown that vulcanisation of natural rubber at room temperature or in sunlight can be achieved by using binary and ternary synergistic mixtures of conventional accelerators. A number of practical applications for these systems have already been found. The present paper describes the technological properties of such vulcanisates in comparison to those of vulcanisates cured at usual vulcanisation temperatures. It is seen that the room temperature vulcanisate is in no way inferior to the conventional vulcanisate with regard to technological properties.

The network features of room temperature vulcanisates such as cross link density, types and concentrations of sulphidic links, efficiency values etc are described. Chemical probes such as hexane thiol, propane, thiol, and triphenyl phosphine have been used to determine the ratios of monosulphidic, disulphidic and polysulphidic links in these room temperature cured vulcanisates. The effect of cure time on the changes that occur in the network has been followed.