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# PREPARATION AND PROPERTIES OF DEPROTEINISED NATURAL RUBBER OBTAINED BY PAPAIN TREATMENT

A Coomarasamy and W M G Seneviratne
*Rubber Research Institute of Sri Lanka*
*Telewala Road, Ratmalana*

Natural rubber, in addition to the rubber hydrocarbon, contains a large number of non-rubber constituents present in small amounts. These substances have pronounced effects on the properties of natural ruber. Hydrophilic constituents such as proteins, sugars and mineral ions have been found to affect the physical and dynamic properties of natural rubber. Therefore for certain engineering applications it is desirable to use a high quality natural rubber with low nitrogen and ash contents referred to as deproteinised natural rubber (DPNR).

This paper is concerned with the use of a locally available enzyme papain for the preparation of high quality natural rubber which meets the raw rubber specifications for the DPNR. This is a high added-value grade of natural

rubber and small commercial quantities of this rubber have been manufactured at the RRISL factory and exported at a premium price.

The effect of sludge removal, centrifugation, dilution, fractionation and duration of the treatment, on raw rubber properties have been studied. Physical properties such as tensile strength, modulus, hardness, elongation at break, resilience and heat build-up have also been determined for the vulcanizates prepared using formulations recommended for engineering applications. The results obtained clearly show that the resilience and heat build-up properties of deproteinised rubber prepared by our method are superior to those of CV 60 and 5L grades of rubber.