Natural Rubber Research, 20 (1&2): 15-22, 2007

BREAKDOWN BEHAVIOUR AND TECHNOLOGICAL PROPERTIES OF NATURAL RUBBER FROM SELECTED *HEVEA BRASILIENSIS* CLONES

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Submitted: 02 April 2006 Accepted: 13 June 2007

George, K.M., Sebastian, T., Joseph, R. and Thomas, K.T. (2007). Breakdown behaviour and technological properties of natural rubber from selected *Hevea brasiliensis* clones. *Natural Rubber Research*, 20 (1&2): 15-22.

The breakdown properties of sheet rubber from twelve exotic clones and RRII 105 did not show significant differences. Compounds prepared from ACS 1 as well as HAF filled mixes showed comparable cure characteristics and technological properties. Similar retention of strength and modulus when subjected to thermal ageing were observed for samples of both the mix types using rubber from all the clones studied.

Key words: Breakdown behaviour, Clones, *Hevea brasiliensis*, Sheet rubber, Technological properties.

INTRODUCTION

The breeding programme for *Hevea brasiliensis* aims mostly at improvements in biological characters such as growth, yield and resistance to biotic and abiotic stresses. However, a high yielding clone with vigorous growth need not always produce latex (rubber) of desirable physical properties. Hence, latex qualities also require attention in breeding. A major source of variability within and among natural rubber (NR) grades probably is the clone from which the latex is derived (Fuller, 1988). Properties of latices from different clones have been studied (Subramaniam, 1976; Saraswathyamma *et al.*, 1990). However, there are very few reports on the physical properties of rubbers from different clones. Environmental and soil factors may influence both the quantity and composition of latex (Ebi and Kolawole, 1992). Clonal variations may influence the non-rubber constituents, which in turn affect the properties of latex and bulk rubbers.

RRII 105 is the most popular *H. brasiliensis* clone developed by the Rubber Research Institute of India and is widely cultivated in the country. Significant clonal and seasonal variation in plasticity, Mooney viscosity and gel content in the latex of 12 exotic clones and RRII 105 has been reported earlier (George *et al.*, 2004).

Uniformity and consistency in the processability of elastomers are essential for providing solutions to the rubber industry's increasing demands for higher productivity, quality and energy conservation. Earlier studies on the processability of natural rubber (NR) have been based on parameters such as Mooney viscosity and plasticity (Bristow, 1982; Lim and Ong, 1986). Breakdown of rubber occurs in most of the processing operations. Consistency in the breakdown behaviour of NR is an important factor in its processing. The plasticity retention in-

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