

Effect of Clone type on Storage Hardening and Gel Content of Raw Natural Rubber

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Latex is the only non-synthetic elastomer in wide use derived from the milk-like liquid of the Rubber tree. At present the country ranks among the world's top ten largest producers and 7th largest exporter of natural rubber. Even though Sri Lanka is the one of the leading manufacturer of raw rubber, most of the product is carried out in other countries and those rubbers should be kept under storage conditions until use. During transportation or upon storage natural rubber exhibits different storage properties. Hence, rubber industry has increase the requirement for quality and uniformity of natural rubber. The objective of this study was to assess effects of clone type on gel content and storage hardening of natural rubber. Ten different clones rubber were used as samples in this study which are RRISL 201, 202, 203, 205, 206, 211, 216 217, 219 and RRISL 222. Properties of raw rubber were analyzed using standard methods of Gel content, Mooney viscosity, stress relaxation rate, Green strength, Initial plasticity and Hardening plasticity. Minitab 16 statistical software was used to analyze the qualities of nine replicates from ten different clones. Most clones were showed medium and hard viscosities and none of clones reported low viscosities. Correlation between Mooney viscosity and Initial Wallace plasticity were analyzed using regression and identified that there is a relationship among them. The RRISL 203 clone gave relatively high Mooney viscosity, P₀, stress relaxation rate and green strength. Therefore it can be concluded that RRISL 203 clone consisted high molecular weight. As all the tested properties of RRISL 217 clone have met the specification requirements for rubber processing, can be successfully used in product manufacturing.

Key Words: Gel content, Storage hardening, Mooney viscosity, Green strength, Initial plasticity, clones