

**DETERMINATION OF THE MOST APPROPRIATE
MOONEY VISCOSITY LEVEL FOR TUBE
PRODUCTION**

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By
DENIYE GEDARA DEEPIKA HEMAMALI PREMARATHNE

**Palm and Latex Technology & Value Addition Degree Programme
Faculty of Animal Science and Export Agriculture
Uva Wellassa University of Sri Lanka**

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ABSTRACT

Usage of natural rubber and butyl rubber are common in tube production. Determination of Mooney viscosity level of natural rubber and butyl rubber is an essential practice done in order to maintain the rejection percentage below 2 % while getting the desirable physio - mechanical properties of the end product. Mooney levels from 44 to 58 for natural rubber and 45 to 58 for butyl rubber are the current viscosity values used in the tube production at Samson Rubber Industries. But, if there is a specific Mooney value for both natural and the butyl rubber, it would be beneficial for compounding, especially to reduce the rejection percentage in the industry. Therefore a study was conducted to determine the most appropriate Mooney levels for both butyl rubber and the natural rubber compounding done in tube manufacturing. Experiments were done for natural and butyl rubber separately. In the Experiment 01, 11 natural rubber samples having Mooney values from 47 to 57 were used. And in the Experiment 02, 11 samples of butyl rubber having Mooney values from 44 to 55 were used. All the treatments (22) were replicated 03 times and they were arranged in Complete Randomized Design. 200 tubes were produced for each replicate. All together 13200 (200 X 66) tubes were used for the determination of rejection percentage according to the company procedure. Obtained results reveal that there was a significant difference in rejection percentages with the different levels of Mooney values for both butyl and natural rubber compound. Further, it can be said that 51, 52, 53 and 54 Mooney values for natural rubber compounds and 44 and 45 Mooney values for butyl rubber compounds are the most appropriate Mooney Viscosity levels that can be used in tube production to maintain rejection percentage below 2 % according to company requirement.

Key Words – Butyl rubber, Mooney viscosity, Natural rubber, Rejection percentage, Tube manufacturing