

**The Effect of Maturity Level of Compounded Natural Rubber Latex
on Tensile Strength of Household Gloves**

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by

**WANNINAYAKA MUDIYANSELAGE NIPUNA SURANJITH
BANDARÀ**

**Department of Export Agriculture
Faculty of Animal Science and Export Agriculture
Uva Wellassa University of Sri Lanka**

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ABSTRACT

Household gloves are mainly manufactured using natural rubber compounded latex. Properties of the natural rubber compounded household gloves are highly dependent on its tensile strength. Tensile strength of these products is affected by the degree of maturation of the compounded latex. With the maturation of the compounded latex, Swelling Index (SI) of the compound is changed. Obtaining higher tensile strength with optimum SI is important to have an effective and efficient production of these gloves.

This research was carried out with the aim of finding the optimum level of compound maturity and Swelling Index of compounded latex for the highest tensile strength of natural rubber household gloves. Standard natural rubber household glove compound formulation used by the industry for the production, was selected for this research. Then the compound was produced according to the selected formulation and was allowed for maturation. Meanwhile, three samples from the compound were taken at three-hour intervals up to 147 hours and the swelling test was conducted. Average Swelling Index (SI) of above three compounds were measured. Three replicate household gloves from each replicate were produced by hand dipping at three-hour intervals up to 147 hours. Then, the tensile strength of produced household gloves was measured using Tensile testing machine. Swelling Index for the highest tensile strength of the gloves was determined by analyzing the data.

Results showed that Tensile strength increased up to a maximum of 266 kgf/cm² upon 95 of swelling index and then the Tensile strength decreased. Therefore, Swelling Index 95 is the optimum value for the highest Tensile Strength of household gloves, against the range between 100 and 90, which is currently being used. The optimum maturation level of the compounded natural rubber latex was found as 78 hours to achieve the maximum tensile strength.

Keywords: Household gloves, Latex compound maturation, Swelling index, Tensile strength.