

**GLOVE MIXING PROCESS OPTIMIZATION OF
GAMMEX POWDER FREE PRODUCT TO
OVERCOME SCUM FORMATION**

A dissertation submitted to the
Faculty of Animal Science and Export Agriculture
Uva Wellassa University

In partial fulfillment of the requirements for the award of
Bachelor of Science in Palm & Latex Technology and Value Addition

By
**RAJAKANNAGE MANUSHA THATHSARANI
DISSANAYAKE**

**Palm & Latex Technology and Value Addition Degree
Programme**

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

2018

ABSTRACT

Hevea brasiliensis latex is used to manufacture surgical gloves. Gammex Powder Free gloves are low in residual proteins and powder. Hence they are less susceptible to allergies. Scum formation is a major drawback in compounding process which contains of two major phases, phase 1(heat prevulcanization) and phase 2(ambient prevulcanization). The major issue of the current process is scum formation during prevulcanization stage. The main reason for scum formation is the lack of stability at elevated temperature, high dosage of ZnO which forms excessive zinc amine complexes and due to less Brownian motion of curing agents. The trials were done by changing 3 main factors such as Potassium Laurate (PL) level, ZnO % and mode of introducing cure pack. As per the trials, changed PL dosage as 50 % in each phases, interchanged ZnO dosage in phase 1(lower dosage) & phase 2(higher dosage), individual dispersions of curing agents were introduced. Anyhow, ZnO trial was failed due to lack of ZnO for the activation of prevulcanization process. According to the statistical analysis using Minitab 16 software, the P value (<0.05) at 0.05 level of significance proved that there was an interaction between PL level and curing method. With the PL 50% in both phases and adding individual dispersions, the scum level was reduced from 8% to 0.5%. Gloves were prepared to test whether the chemical adjustment was affected for final glove quality. The modulus, Tensile Strength was more than required and it is cost effective. In conclusion, the scum formation can overcome by changing PL level and by adding individual dispersions. Furthermore, it is beneficial to overcome glove defects like scum, dirt hole and it allows opportunity for the process optimization of GPF product.

Key words: Scum, Potassium Laurate, ZnO, Individual dispersions