

# **EVALUATION OF GRAFTING EFFICIENCY OF POLAR MONOMERS ON TO NATURAL RUBBER BACK BONE**

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## ABSTRACT

Natural Rubber is the milky fluid obtained from the rubber tree. Some modifications have been done to extend its properties. Grafting is one of the main processes in which imparts some polarity to the natural rubber backbone. Normally natural rubber latex contains non-rubber particles. In this research, the influence of non-rubber particles on the grafting efficiency was studied.

Grafting has been done for four kinds of latex types such as centrifuged latex, double centrifuged latex, deproteinised latex and cream latex. Graft copolymers of MMA with different natural rubber latex types have been prepared using oleic acid, TBHP, ammonia and TEP as activator. FTIR analysis has confirmed the grafting of MMA onto the natural rubber latex backbone. The compounding was done with high ammonium centrifuge latex and grafted latex as 1:2 ratio. A control sample was prepared for the comparison of latex properties and physical properties against grafted latex. Thin latex films were prepared and tested for different properties. Tensile strength, modulus at 100 %, 200 % and 300 %, elongation at break and finally tear strength were measured. Aging properties were also checked with tensile test. The best grafting efficiency was observed for MMA grafted cream latex. Other properties were compared with the control sample. Tensile properties were comparatively poor in grafted latex samples compared to control, but MMA grafted double centrifuged latex exhibited enhanced properties in tear strength and modulus at 100%.

**Key Words:** Methyl Methacrylate (MMA), MMA grafted centrifuged latex, MMA grafted double centrifuged latex, MMA grafted deproteinised latex, MMA grafted cream latex, Grafting efficiency.