

**UNIVERSITI TEKNOLOGI MARA**

**THE PHYSICAL AND MECHANICAL  
PROPERTIES OF CARBON BLACK  
FILLED NATURAL RUBBER LATEX  
GLASS FIBER LAMINATES**

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## ABSTRACT

In this research, six of formulation were prepared consist of 0%, 0.5%, 1.0%, 1.5%, 2.0% and 2.5% of CB loading into the in NR latex. The effect of carbon black with different loading in natural rubber latex composite was studied. The evaluation of the carbon black particle dispersion in NR latex was done using optical microscope. The tensile strength of NR latex gives the highest tensile strength value. The incorporation of CB particles into NR latex leads to improvement in the tensile modulus of the NR latex composite. The density of these NR latexs increase almost linearly with the increasing percentages of carbon black loading. 2.5% carbon black loading was chosen as a standard formulation to produce the NR latex/GF composite laminates. These laminates were prepared using dipping process. It was found that the mechanical properties of the laminates highly depending to types of glass fiber used. The presence of woven fiber in NR latex/GF composite laminates increase the tensile strength, impact and density value. Addition of tissue fiber increase the elongation at break of NR latex/GF composite laminates. For water absorption, presence of tissue fiber in laminating system shows tissue fiber absorb less water and chopped strand mat absorb more water for both two layers and three layers of fibers.

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