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Appropriate strategy to overcome potential problems in natural rubber latex processing

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Property variations with maturity time and storage conditions have been a potential problem in compounding and processing of natural rubber (NR) centrifuged latex. Concentrated NR latex needed to be stored for 21 days of maturity period prior to processing in order to achieve acceptable level of properties and this is a problem in production operations. The main objective of this study was to investigate the property variations of natural rubber centrifuged latex with different maturity time and with different storage conditions (aerobic and anaerobic). During the experiment, changes in properties of high ammonia (0.7% w/w) NR centrifuged latex were evaluated at different maturity stages (0, 5, 10, 20, 30, 40, 50 and 60). The samples were stored at room temperature (28±2^{o}C) and Volatile Fatty Acid (VFA) Number, Mechanical Stability Time (MST) and Potassium Hydroxide (KOH) Number were studied. Another two sets of samples were kept under aerobic and anaerobic storage conditions for 21 days and variation of the same properties were evaluated. Concentrated natural rubber latex properties have changed significantly ($p<0.05$) with the maturity time. There was a significant difference in MST and KOH number with storage condition, while VFA number was not affected, significantly. It is found that optimum latex properties could be achieved in less than 20 days by keeping under aerobic storage condition which was identified as a great achievement with respect to the production operation process of NR latex.

Keywords: Maturity Time, Mechanical Stability, Potassium Hydroxide Number, Storage Condition, Volatile Fatty Acid Number

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