

## INFLUENCE OF STORAGE ON PROPERTIES OF NATURAL RUBBER LATEX CONCENTRATE AND VULCANIZATES

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High ammonia and low ammonia preserved centrifuged latices were stored for a period of 18 months. Effect of storage on properties of the latices and vulcanizates prepared therefrom was investigated. Mechanical stability time, zinc oxide viscosity, potassium hydroxide number and volatile fatty acid number were found to be affected by storage. Physical properties of vulcanizates were more or less unaffected by storage of latices up to six months, but beyond this period, decrease in properties was observed. Ageing resistance of the vulcanizates was also found to be affected by the storage period of latices.

Key words: Natural rubber latex, Mechanical stability time, Zinc oxide viscosity, Potassium hydroxide number, Volatile fatty acid number, Latex vulcanizate, Ageing.

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### INTRODUCTION

In India about 12 per cent of the natural rubber produced is processed into latex concentrate. During pumping, transportation and storage, latex is subjected to mechanical agitation, aeration and even temperature variation. It is known that the chemical composition of latex changes significantly due to the action of bacteria, enzymes and preservatives. These changes in chemical composition are reflected in the properties of latex particularly, mechanical stability time (MST), volatile fatty acid (VFA) number and potassium hydroxide (KOH) number and hence they received the most attention. Several investigations have been carried out on the changes in properties of latex concentrate on storage. Collier (1955) observed a progressive decrease in mechanical stability of centrifuged latex

stored under anaerobic conditions, which prevailed in an almost fully filled container. He noted an increase in mechanical stability of latex when there was an appreciable air space in the container. He also reported that increase of VFA of latex concentrate was more pronounced when it was stored in anaerobic conditions. Lowe (1960) reported that pumping of latex concentrate accelerated the formation of VFA. Pillai (1968), however, reported that commercial pumping operation did not have any deleterious effect on the properties of latex. Reports of RRLM (1971) indicated that MST, VFA and KOH number of latex concentrate increased on storage and MST is particularly affected by storage temperature. According to Chin *et al.* (1979), although storage of latex affects its primary properties, the physical properties of vulcanized rubber films prepared from the stored latex are not adversely