

ENZYMATIC DEPROTEINIZATION OF NATURAL RUBBER LATEX

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An attempt was made to produce low protein natural rubber latex suitable for making dipped goods with low extractable protein content. A laboratory process was standardized for the deproteinization of natural rubber latex using a proteolytic enzyme. Using the standardized process deproteinized latex was prepared on a pilot plant scale and its processing and technological properties were assessed.

Key words: Deproteinization, Extractable protein, Leaching, Natural rubber latex, Protein allergy, Proteolytic enzyme, Vulcanization.

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INTRODUCTION

The use of natural rubber (NR) latex products is facing serious challenges owing to allergic effects of some of the extractable proteins (EP) contained (Pendle, 1994). Several techniques are being adopted for manufacturing products with very low EP content. Use of low protein latex is one of the important requirements for this. NR latex contains 2 to 3 per cent proteins. During centrifuging, only a part of the soluble proteins are removed. The adsorbed proteins on the surface of the rubber particles cannot be removed by this process (Blackley, 1997). Several methods have been adopted for the removal of bound proteins from the surface of the rubber particles.

Peethambaran and Thomas (1985) reported that enzymes can be used for this purpose.

Anilozyme-P is a proteolytic enzyme preparation useful for deproteinization of NR (Rajammal and Thomas, 1978). In this work, an attempt was made to produce low protein latex using this enzyme in a single centrifuging process and to evaluate its properties.

MATERIALS AND METHODS

The study was conducted in two phases. In the first phase, laboratory trials on deproteinization of latex was made and in the second phase, the processing and technological properties of the low protein latex prepared on a commercial centrifuge