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Quality improvement of natural rubber latex through introduction of Aluminium hydroxide

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Consumption of rubber gloves, both examination and surgical, increased significantly from mid 1980's due to the spread of AIDS, mainly in Europe and in America. It is very well known that the best way of curtailing the spread of this disease, which is a blood and human body fluid assimilated disease, is by the use of rubber gloves and condoms.

It is also very well known that natural rubber based gloves are the best for this purpose and the synthetic rubber based gloves and condoms are not used for these purposes as they can not give the best feel to the user.

However, now there is a fear in Europe and USA that the use of NR based gloves constantly in contact with human tissues over a period of time can cause protein allergy, which can leads to even shock and death. Hens, although many attempt have been made to produce deproteinized centrifuged latex for these purposes, it has not been possible to do so yet commercially. In this project, $Al(OH)_3$ was used to deproteinize NR latex used in centrifuged latex industry. Addition of

$Al(OH)_3$ was carried out both prior to centrifuging and prior to vulcanization of the centrifuged latex produced, in order to measure protein content in the latex kjeldhal method was used.

According to results, in the sample studied %N was drop by 55.47 % in the sample where $Al(OH)_3$ was added prior to centrifuging in the concentration of 0.5 % w/w. But the same was only 38.1 % in the sample where $Al(OH)_3$ was added prior to vulcanization in the concentration of 0.5 % w/w.

In order to maintain latex properties at standard level, ISO standard test methods were used during this project work. It was observed during the process that the properties of latex were superior and was to the standard, where $Al(OH)_3$ addition was done prior to centrifuging. Further addition of $Al(OH)_3$ has no effect on the Ca^{2+} and Mg^{2+}ions in the latex.

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