DEVELOPMENT OF NATURAL RUBBER LATEX-PORTLAND CEMENT MIXES FOR ENGINEERING APPLICATIONS

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Synthetic polymers such as polystyrene, polybutadiene and polyvinyl acetate are used in latex form, at amounts (dry) of about 15 to 17% on Portland cement to obtain improved properties such as tensile strength. There is however no such recommendation for using natural Rubber latex The cause for this deficiency has been found by us to be due to non rubber substances and especially sugars found in latex serum. These non rubber substances could be reduced by centrifugation and further by dilution with water and recentrifugation.

Our work has shown that rubber / cement ratio in (1 : 1½) cement mortar could be used up to 0.035% for field latex, up to 0.10% for once centrifuged latex and up to 0.20% for double centrifuged latex without drastically impairing physical properties and on the other hand some improved properties are obtained. Values for tensile strength, compressive strength and bending strength for the varying latices and at different rubber contents are given in the paper. The best properties were obtained with field latex, contrifuged latex and double contrifuged latex at a water/cement ratio of around 0.035%, 0.10% and 0.17% respectively. The latices could be prevulcanised with vulcanising chemicals, without serious reduction in strength of the Portand cement-natural rubber mixes. This development opens the way to use natural rubber latex in engineering applications

We have investigated the incorporation of natural rubber latex in "Wirecon", beat building material developed by the State Engineering Corporation. Laboratory results obtained for "Wirecon" / natural rubber latex mixes are given in the paper. The results show that appreciable improvements in impact strength, multiple fracture behaviour and extensibility can be obtaind by mixing rubber latex in "Wirecon".