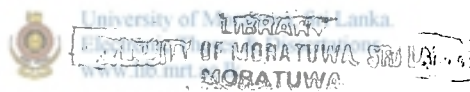


Investigation of aluminahydrate as a fire retardant in silica filled rubber floor-tiles.

A research project thesis submitted in partial fulfillment of the degree of Master of Science in Polymer Technology.

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September 2004.

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DECLARATION

I hereby declare that this submission is a result of a work carried out by me and to the best of my knowledge. It contains no material previously written or published by another person nor material which has been accepted for the award of any degree or acceptable qualification of a University, or other institute of higher learning, except where the reference to the material is made.



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K.A.Rajapaksha
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ABSTRACT

The flame-retardant chemicals, which commercially find applications in rubbers, are considered to be toxic chemicals, because of the liberation of their harmful volatile by products, when rubbers are on fire.

From the research works in the recent past it has been established that the chemical, aluminahydrate is one of the safest and environmentally friendly flame retardants. As a result, the application of this chemical as a flame-retardant in rubbers and plastics is on the rise, at present particularly in the developed western countries.

Thus in view of utilizing this chemical in local industries, as a flame retardant especially in the silica filler added rubber floor - tile compounds, an attempt has been made in this work, to evaluate the chemical for its fire retardant property in their vulcanizates.



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The study reveals that to obtain optimum flame retardance in the rubber floor tiles, the conventional rubber compounds containing 40 phr precipitated silica should be incorporated with atleast 105 phr of aluminahydrate in place of 5 phr of the mixture of chlorinated paraffin wax and antimony trioxide.

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