

STUDIES ON IMPROVING THE FLAME RESISTANCE OF RUBBERIZED COIR

A. Coomarasamy and D. Nirmala

(Rubber Research Institute, Telawala Road, Ratmalana)

Rubberized coir is made by bonding a random web of curled coir fibre with natural rubber latex. It is used as cushioning pads in mattresses, car seats and upholstery, as a packaging material and in insulation. These products can be manufactured either by using semi-automatic production line or manually using simple equipment at a cottage industry level. The ready availability of both natural rubber latex and coir in twisted form in Sri Lanka, has resulted, in recent years, in large increase in the production of rubberized coir in Sri Lanka and these products are available at a medium price range for cushioning applications. The rubberized coir products available at present, are potential fire hazard, as both the coir and rubber are flammable materials. Hence it is necessary to develop suitable treatments for improving the fire resistance of these products.

In the present work treatment of coir and rubber compound have been tried out. Effectiveness of compounds such as boric acid, borax, boric acid-polyvinyl alcohol compound, chlorinated hydrocarbons such as Cereclor 45 and Cereclor 70, antimony trioxide, aluminium hydroxide, calcium pyrophosphate and ortho phosphate and locally available fluoro apatite, either alone or in combination with others have been studied. The effectiveness of natural rubber latex modified with bromotrichloromethane has also been studied in various formulations. Flame resistance was measured using a similar procedure as that adopted for American Motor Vehicle Safety Standard MVSS 302.

It has been found that the coir pads prepared with formulations containing PVA-boric acid compound, boric acid and calcium pyrophosphate, boric acid and antimony trioxide, antimony trioxide alone and rubber latex modified with bromotrichloromethane along with boric acid, had satisfactory flame resistant characteristics.