

Investigation of Textile Laminates Structure and Electrical Resistance

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Abstract : Textile laminates with breathable membranes are used extensively in protective footwear. Such polymeric membranes act as a barrier to liquid water and soil entry from the environment, but are sufficiently permeable to water vapour to allow significant amounts of sweat to evaporate and affect the comfort of the wearer. In this paper the influence of absorbed humidity amount on the electrical properties of textiles lining laminates with and without polymeric membrane is presented. It was shown that textile laminate structure and its layers have a great influence on the water vapour absorption. Laminates with polyurethane foam layers show lower ability to absorb water vapour. Semi-permeable membrane increases absorbed humidity amount. The increase of water vapour absorption ability decreases textile laminates' electrical resistance. However, the intensity of the decrease in electrical resistance depends on the textile laminate layers' nature. Laminates with polyamide layers show significantly lower electrical resistance values.

Keywords : electrical resistance, humid atmosphere, textiles laminate, water vapour absorption

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