

# Abrasion Resistance: Of Top Priority!

***There is a laudable current trend to make use of natural materials: However, such materials should be used in such a way as to produce a durable product. The PFI Physical Laboratory has noted a significant increase in the number of complaints about shoes exhibiting a lack of abrasion resistance and offers recommendations.***



Depending upon their intended function in a shoe, shoe materials have to withstand differing stresses. Peak stresses occur mainly in the heel and toe regions. In particular, heel lining materials have to meet stringent demands with regard to abrasion resistance. The current trend is to use natural materials such as wool or cotton as shoe lining materials. And our Physical Testing Laboratory has promptly noted a significant increase in the number of complaints about insufficient abrasion resistance of lining materials. It is

important to bear in mind that natural materials often show a lower resistance to abrasive stress than synthetics, so that the use of textile lining materials not containing synthetic fibres – especially in footwear exposed to pronounced stress such as children’s shoes, sport shoes, or hiking boots – runs the risk of complaints.

Heel linings made of leather run into fewer problems regarding their surface resistance, but there are exceptions: For example, on use of leather of poor-quality and relatively loose fibre structure.



Testing of abrasion resistance also plays an important role for shoe upper materials. Special mention should be made here of materials used for vamp inserts or lace trims, especially for children’s shoes, or in special surface treatments such as flocking, imprinting, or glitter-look materials.

Leathers can also suffer from problems such as insufficient adhesion of the finishing agent in the wet state.

The choice of test procedure for abrasion resistance of footwear materials depends upon the kind of stress to which it is exposed in a shoe.

PFI tests abrasion resistance using Martindale, Schopper, and Taber Abraser test instruments and also offers additional test methods such as the determination of the rub resistance of insoles and inserts and rubbing with a rubber chafing element (this is a modified colour fastness to rubbing test).

**Any questions? Please contact:**

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