

The Investigation of Bending Rigidity of Textile Materials

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The aim of work is to investigate the conformity and differences between bending rigidity testing results, performed by two groups of pattern makers and to analyze their effect upon garment virtual simulation using Modaris 3D Fit software.

Fabric stiffness tests were performed according to standard BS 3356-1990. It is based on the cantilever length i corresponding to the angular deflection at 41.5°. Bending length C is half of the cantilever length l. Bending rigidity is calculated as follows: $B = W \cdot C^3 \cdot 9.807 \cdot 10^{-6}$, where W is the area density in g/m².



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t group st group ad group ad group	Density 66.70 Material Thickness 0.34 Image: Stance warp Image: Stance warp Bending Resistance Warp B (1e-6 N.m) 0.53 0.53 0.33 b) bending rigidity B in warp and weft directions defined by the 2nd group of pattern makers for plain chiffon (3) and 3D top and front views of draped skirt The results of simulation with Modaris 3D Fit software for plain chiffon (3)	Bend for d but a weft) differ make
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Structure	Composition	Surface density, g/m ²	Thickness, mm
plain	100% linen	273,67	0,73
plain coated	40% PES, 60% cotton	170,97	0,33
plain chiffon	100% PES	66,70	0,34
satin	100% cotton	126,07	0,34
twill	100% PES	153,53	0,31
jersey	100% PES	303,07	0,89
	plain coated plain coated plain coated plain chiffon satin twill jersey	plain100% linenplain coated40% PES, 60% cottonplain coated100% PES, 60% cottonsatin100% OPESsatin100% cottontwill100% PESjersey100% PES	density, g/m²plain100% linen273,67plain coated40% PES, 60% cotton170,97plain chiffon100% PES66,70satin100% cotton126,07twill100% PES153,53jersey100% PES303,07

ding rigidity *B* differences exist not only different sides (face and back) of fabrics, also for different directions (warp and). The important observation is that the rence between testing of two pattern ers groups existed and for certain fabrics as significant, e.g. for plain chiffon it hed nearly 50%. It means that additional c testing skills must be trained in order to elop accurate patterns and close to real g of virtual garments.

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