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ТЕХНИЧКИ ФАКУЛТЕТ "МИХАЈЛО ПУПИН" У ЗРЕЊАНИНУ

The effect of miss stitches on the dimensional and stretch properties of cotton/flax knitted fabrics - Journal of Engineered Fibers and Fabrics

Објављен рад

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This research aims to investigate the influence of single miss stitches on the structural characteristics, dimensional stability, and stretch properties of double weft cotton/flax knitted fabrics. The study encompasses nine fabric variants with different numbers of knit and miss stitches in the repeat, alongside with half Milano rib fabric. All knitted fabrics are produced using a 2-ply 25x2tex x 2 cotton/flax blend yarn (70% cotton, 30% flax) on a 10-gage flat-bed knitting machine. The comprehensive analysis encompasses crucial structural properties after dry relaxation for 10 days and after four washing cycles. Also, both the dimensional properties and stretch properties were examined both lengthwise and widthwise. It was found that the lengthwise dimensional changes for all fabrics were significantly greater than widthwise. The interlooping repeat significantly affects the widthwise fabric shrinkage: an increase in the percentage of missed stitches in the repeat leads to a decrease in the widthwise shrinkage. The full lengthwise deformation of studied fabrics ranges between 15% and 25%, while the widthwise value reaches up to 63% and depends on miss stitches repeat. An increasing the percentage of missed stitches in the repeat leads to a decrease in the widthwise stretching due to the floats' positioning in this direction. Fabrics with the same percentage of miss stitches in the repeat show similar levels of structural characteristics, shrinkage and deformations. In brief, this research offers valuable insights into the properties of double knitted fabrics with different single miss stitches. Understanding how these stitches influence fabric characteristics can greatly optimize textile design and manufacturing for both fashion and technical textiles.

