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EFFECT OF LYCRA AND NYLON YARN PERCENTAGE ON THE DIMENSIONAL AND PHYSICAL CHARACTERISTICS OF LOCKNIT WARP KNITTED FABRICS

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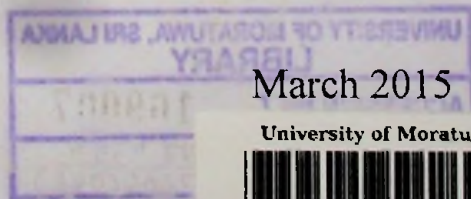
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Thesis submitted in partial fulfillment of the requirements for the degree Master of
Science in Textile & Clothing Management.

Department of Textile & Clothing Technology

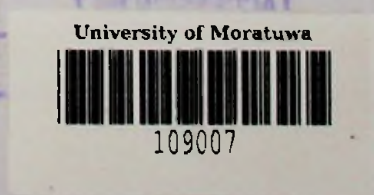
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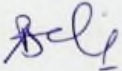


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Abstract

The effects of different percentages of elastane and Nylon yarn on the dimensional and physical properties of elastane/Nylon Locknit warp knitted fabrics are investigated. In order to investigate the properties of the fabric, four different samples were knitted by selecting four different run-in ratios of elastane and Nylon. Elastane yarn was kept at a constant elongation of 65% for all four samples. Two samples were produced keeping constant run-in of nylon yarn and changing the run-in length of elastane yarn. Then elastane yarn run-in was kept constant and produced two other samples.

The sample with minimum run-in length of elastane yarn and the highest run-in ratio has the highest value of load at 20%, 40%, 60% and 80% extensions in length direction and the lowest values of load at 20%, 40%, 60% and 80% extensions in width direction. This is due to the fact that low run in of elastane yarn increases the strain on the yarn and it increases the tightness factor value of the sample and contributes higher load at extension along the length direction of the greige sample. Nylon yarn runner length influences the relaxation behavior of elastane yarn and it leads to reduce the load at extension along the width direction of the sample.

Changing of Nylon yarn runner length influence the relaxation behavior of elastane yarn and it has an effect on the load at different extension in width direction and course density of the greige fabric. Results revealed that the effect of elastane content of the sample is more on the load at extension values than the effect of run-in of the Nylon yarn.

Key words Greige fabric, Run-in, elongation, load at extension. course density

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LIST OF ABBREVIATIONS

ABBREVIATION	DESCRIPTION
%	Percentage
°	Degree of Temperature
C	Centigrade
F	Franhide
ASTM	American standard of textile material
b_g	Back guide bar
CPI	Courses per Inch
GSM	Gram per square meter
g/m^2	Gram per square meter
f_g	Front guide bar
K	Tightness factor value
LTD -03	Limited brand stretch & recovery test
l	Stitch Length
l_f	Stitch Length-front guide bar
l_b	Stitch Length – back guide bar
S	Stitch density
WPI	Wales per inch
CPI	Courses per inch
T	Yarn count in Tex
T_f	Yarn count in Tex – front guide bar
T_b	Yarn count in Tex – back guide bar
SLS	Sri-Lanka standard

T ₁ G	Sample which is having Run in ratio 2.5:1(1400:550) - Greige
T ₂ G	Sample which is having Run in ratio 2.8:1(1400:485)- Greige
T ₃ G	Sample which is having Run in ratio 2.3:1(1330:580)- Greige
T ₄ G	Sample which is having Run in ratio 2.4:1(1330:550)- Greige
T ₁ F	Sample which is having Run in ratio 2.5:1(1400:550) - Finish
T ₂ F	Sample which is having Run in ratio 2.8:1(1400:485)- Finish
T ₃ F	Sample which is having Run in ratio 2.3:1(1330:580)- Finish
T ₄ F	Sample which is having Run in ratio 2.4:1(1330:550)- Finish
G _E	Greige Sample – Width Direction
G _L	Greige Sample – Length Direction
F _E	Finished Sample – Width Direction
F _L	Finished Sample – Length Direction