ACCELERATED DIMENSIONAL STABILITY TEST METHOD DESIGNED FOR 100% COTTON SINGLE JERSEY WEFT KNIT FABRIC IN URGENT SITUATIONS

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DECLARATION

"I declare that this is my own work and this dissertation does not incorporate without acknowledgement any material previously submitted for a Degree or Diploma in any other University or institute of higher learning and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where the acknowledgement is made in the text.

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ABSTRACT

Standard dimensional stability test methods have higher lead times. In a manufacturing environment a dimensional stability test method with shorter lead time is an option provided under some international standards. Such test methods have been developed based on one specific machine designed exclusively for this purpose. As a solution, an alternative test procedure was developed in an existing washing machine for industrial use.

The Miele automatic front loading washing machine was selected for this research. A washing and drying procedure developed with 30-minute washing procedure and 30-minute tumble drying procedure. This research related only to 100% cotton single jersey products. The key features of the BS EN ISO 6330:2012 washing and drying procedure was compared with those of the proposed washing and drying procedure.

A pilot run with five samples was done with three different weights against proposed washing and drying procedure for conditioned, unconditioned states and BS EN ISO 6330:2012 washing and drying procedure. Thirty samples were tested in one material to confirm the consistency of the new washing and drying procedure. Twelve samples representing four different GSM values were tested according to BS EN ISO 6330:2012 and proposed washing and drying procedure and a satisfactory correlation was obtained.

DEDICATION

I lovingly dedicate this dissertation to my parents, wife and two sons, who supported and encouraged me in every way during my studies.

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LIST OF ABBREVIATIONS AND ANNEXURE

Abbreviations

AATCC	American Association of Textile Chemists and Colorists.
BS	British Standard
cV%	Coefficient of variation
EN	European Norm
ISO	International Organization for Standardization
M&S	Marks & Spencer
RPM	Revolutions per minute
$5N^{h}$	50 °C Normal washing procedure in BS EN ISO 6330:2012
GSM	Grams per square meter
CPI	Courses per inch
WPI	Wales per inch
TPI	Twist per inch
μ	Mean
σ	Standard deviation

Annexure