

OBJECTIVE EVALUATION OF SEAM PUCKER

by

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TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS	ii
LIST OF TABLES	vi
LIST OF FIGURES	viii
ABSTRACT	ix
CHAPTER 1.0 INTRODUCTION	1
1.1 Background	1
1.2 Problem statement	4
1.3 Rationale of the study	5
1.4 Objective of the study	6
1.5 Scope of the study	7
1.6 Significance of the study	8
CHAPTER 2.0 LITERATURE REVIEW	9
2.1 Introduction to seam	9
2.1.1 Seam geometry	10
2.1.1.1 Types of stitch	10
2.1.1.2 Types of seam	15
2.1.2 Seam analysis	16
2.2 Factors influencing seam pucker	18
2.2.1 Sewing thread	18
2.2.1.1 Types of sewing thread	20
2.2.1.2 Important factors in selecting sewing thread	22
(a) Size	22
(b) Strength	26
(c) Frictional property	29
(d) Evenness	32
2.2.2 Fabrics	34
2.2.2.1 Types of fibre	34
2.2.2.2 Fabric structure	38
2.2.2.3 Mechanical properties related to seam pucker	40
2.2.3 Sewing machine	46
2.3 Previous investigation	48

ABSTRACT

This research was done to develop a system that can be used to predict the performance of various types of sewing threads before sewing process in terms of seam pucker for different types of fabric. Seam pucker is one of the major problems in the garment industry. Seam pucker that appeared as a ridge wrinkle along the surface of the sewn material can affect the overall appearance of the end product.

In order to develop the system, three variables were chosen. These were sewing thread, fabric and stitch density. Twenty-two sewing threads were selected and tested for evenness, surface friction, strength, twist and dimensional stability. Fabrics were chosen based on their weight, fibre type and structure. Fabric weights were in the range of 80 - 180 gm m⁻². The fibres chosen were cotton, polyester, silk, rayon and nylon while weave structures were twill, dobby and jacquard. Total numbers of fabric samples were 11. All fabrics were tested for their physical properties such as weight, thickness, density, strength and stiffness. The stitch density chosen was 4 or 6 stitches cm⁻¹. The fabrics were sewn with selected sewing threads and stitch densities. Total numbers of sewn samples were 484. All samples were washed and dried according to the standard before evaluated using the American Association of Textile Chemists and Colorists (AATCC) Test Method 88B-1996: Smoothness of Seams in Fabrics after Repeated Home Laundering.

The results from the evaluation of seam pucker; sewing thread and fabric properties were successfully combined to produce a multiple regression equation referred as the "Seam Engineering Index". It was found that strength, surface friction and thread twist properties of the sewing thread combined with the weft elongation at peak, weft density and fabric stiffness were selected as important parameters in predicting the occurrence of seam pucker for various type of fabrics. The equation of Seam Engineering Index can be used to predict the performance of the sewing thread in terms of seam pucker for shirting materials.

CHAPTER 1.0

INTRODUCTION

1.1 Background

The New Shorter Oxford Dictionary¹ defined seam pucker as:

“A ridge wrinkle or corrugation of the material or a number of small wrinkles running across and into one another, which appear in sewing together two pieces of cloth.”



Figure 1.1: Sample of seam puckering

Kawabata and Niwa² stated that seam pucker is a distortion in the surface of a sewn fabric and appears as a swollen effect along the line of the seam. Puckering or distortion of the fabric along the seam may be apparent immediately after machining or may develop after usage, possibly after several laundering. According to Biles³, a good quality seam finish should have a neat stitch with smooth appearance (without pucker). The smooth appearance of the seam is important in order to produce high quality apparel, and it will give an added value to the garment.