

MEASUREMENT OF SEAM PUCKER IN TERMS OF LIMIT OF CONTRACTION

In the present work seam pucker has been measured in three different ways; - subjectively; by visual comparison of specimen seams of fabrics with standard full scale photographs [AATCC]. Objectively; by measuring the limit of contraction [LaC] in terms of measuring the change of thickness versus contraction of the seam assembly and plotting the relations to find the LaC value. By statistical analysis of measured fabric properties which were assumed to affect seam pucker, to find out the significance of effect of each property. A proposed empirical equation has been derived and the calculated [LaC] 1,2 is found to be highly correlated to the measured LaC with a coefficient of correlation [0.97].

M. Malek

Dept., of Fashion and Textiles
Leicester Polytechnic- P.O. Box 143
Leicester LE1 0DZ. England.

ABSTRACT

1. INTRODUCTION

Seam Pucker is probably the commonest and most troubling problem confronting the Garment Manufacturing. It is as old as the sewing machine itself but the introduction of new and unconventional fabrics and finishes has tended to magnify the problem in the recent times. There are different factors that can cause Seam Pucker. The most important of which are:

Sewing Thread. Differential Feed and Displacement
Pucker (Structural Jamming)^{3,4,5}

Some causes of Pucker are due to combined effect of two or more factors. Researchers tend to study each one separately in order to find the proper remedy. Perhaps the most important topic nowadays is the application of fabric objective measurement to garment manufacturing or in other words prediction of seaming problems (mainly Seam Pucker) by measuring fabric mechanical properties.

The present work is an attempt to measure the Limit of Contraction (which is the maximum in-plane compression that a fabric can accommodate before any visible pucker occurs) subjectively objectively and by statistical analysis of fabric properties which affect Seam Pucker. Objective measurement and statistical analysis has proved to be highly correlated and an empirical formula for Seam Pucker has been introduced.

A. Sheta, M. El Okeily and M. Sultan

Textile Engineering, Faculty of Engineering
Alexandria University, Alexandria, Egypt.

EXPERIMENTAL WORK

Two groups of 100% cotton medium weight fabrics were selected; each group having the same weaving specifications and with a range of different weave structures which varied from Plain and derivatives

through to Twill and Satin weaves. Five different commercial Sewing Threads were used: two 100% spun cotton, two core spun *CIP* and one 100% *PIP* core spun sewing thread, Table (1). The following fabric properties were measured:

- Fabric weight, - Fabric thickness,
- Fabric bending stiffness
- Fabric to Fabric coefficient of friction
- Fabric to metal coefficient of friction, Table (2).

All the fabrics were cut, prepared and seamed according to the ASTM (D-1683-59 T) Standard Seam Assembly Specifications.

SEAM PUCKER MEASUREMENT

(t) Subjective Testing:

Judges were asked to compare the different seams with Full Scale Photos (AA *TCC*) and give ratings, Table (3)

Alexandria Engineering Journal, Vol. 32, No.1, January 1993