

A TREND OF RESEARCHES ON THE PHYSICAL PROPERTIES,  
HAND AND TAILORING PERFORMANCE OF THE WORSTED FABRICS

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The objective measurement of fabric mechanical properties can be traced back to the early work in 1930's by Peirce, and Lindberg and his coworkers at TEFO in Sweden in 1950's and 1960's carried out the objective measurement and analysis of fabric mechanical properties.

These researches related these basic fabric mechanical properties to the tailorability and formability of the fabric. In recent years, Kawabata have successfully devised a system for the objective measurement of fabric handle based on a series of physical tests performed on the fabric.

On the other hand, Postle and his coworkers have researched relationships between the mechanical properties of fabric longitudinal extension and compression, shear and bending and the performance of fabrics during tailoring and also on the performance of garment during use by using their own experimental equipments. Especially, they organized AWTOMEC which has been formed to evaluate the objective measurement of fabric and garment quality based on the HESC model.

Ly and his coworkers in C.S.I.R.O in Australia have developed FAST system similar to KES-F system, but capable of diminishing potential error.

HIPS system developed by TOYOBO Co. in Japan are being used for quality assurance and process control of worsted fabric processing.

Then, these objective measurement techniques are being applied to the development of quality and performance standards for fabric and clothing and also to the development of new textile products and quality and process control systems for use in the textile and clothing industries. These facts make it facilitating communication between research workers and industry and also between the various sectors of the fibre, textile, clothing, textile machinery and related industries.

But, up to now, quality, tailorability and performance of wool fabrics and apparel in our textile industry, are traditionally assessed subjectively by experienced judges in the textile and clothing industries.

Much textile research has concentrated on the development of new processes and high speed processing machinery. And challenge of the future is the efficient large-scale production, using fully automated machinery, of a diversity of high quality wool textile materials and garments.

But, these products will be demanded by discerning consumers requiring good product quality and appearance plus reasonable durability and performance.

In order to achieve above demand by consumers, it is essential to develop an integrated scientific computer-based system of objective measurement for the quality and tailorability of wool textile materials and also for the appearance and performance of clothing.