

# Technical parameters of textile

## Introduction

Quality is of prime importance for every industry or business, to get increased sales & better name amongst Consumers & fellow Companies. Generally Quality control Standards for export are set strictly, as this business also holds prestige of the country, whose company is doing export. Quality standards like ASTM, AATCC, BS, DIN & JIS & ISO must be recognized & agreed by all levels of management. However quality expectations for exports are related to type of customer segments & retail outlets. For textile & apparel industry product quality is calculated in terms of quality & standard of fibres, yarns, fabric construction, colours fastness, Surface designs & final finished garments products. Present paper was aimed at investigating important testing parameters for textile products & steps to be taken to improve these testing parameters.

## Different testing parameters:

- a) Tensile Strength
- b) Tear Strength
- c) Seam Properties
- d) Pilling
- e) Colour fastness to light

### a) Tensile strength

It is the strength of fabric which denotes breaking force required to rupture fabric. A tensile tester is used to determine strength in which central part of width of specimen is gripped in clamps. It determines effective strength of specified width with assistance of adjacent yarns. Fabric assistance depends on type of fabric & construction variables.

### Recommendation for Improvement:

Tensile strength is a property that cannot be improved once a fabric is produced. For future production, a higher thread count or use of stronger yarns should result in a fabric with better tensile strength properties.

### b) Tearing Strength

Tear force required to propagate a single-rip tear of defined length from a cut in fabric when a sudden force is applied. This test is performed by measuring work done in tearing fabric through a fixed distance on tearing strength tester. This test is mainly applicable for woven fabrics not for knitted fabrics.

### Reasons for poor tear strength:

Basically yarn is weak; hence fabric constructed with such yarns will produce a weak fabric with less strength. In rare cases during various treatments fabric may become weak.

### Recommendation for Improvement:

Tearing strength is a property that cannot be improved once a fabric is produced. For future production, yarns with longer fibre length and higher twist may result in higher tear strength properties. Since core of fabric is having problem there are no definite remedies to improve upon. Marginal improvements may be possible with washing or some treatment.

### c) Seam properties

To determine seam maximum force of sewn seams, when force is applied perpendicularly to seam. Test applies to standard seam applied to fabric samples or Production seam as received

in finished garments. Major contributors to seam strength are fabric type & weight, thread type & size, stitch & seam construction, stitches per inch & stitch balance. Seam Strength in woven & knit is same as fabric breaking and bursting strength respectively.

**Reasons for poor seam properties:**

Slippage of yarns in fabric along a seam when stress is applied. Result is that yarns pull out but thread & stitch doesn't rupture. Seam slippage is usually caused by poor fabric design (too loose of a weave) or too narrow of a seam margin. Not using enough stitches per inch & a poor stitch balance can also contribute to seam slippage.

**Recommendation for Improvement:**

If fabric construction or weave is loose then drastic improvements are difficult. Seam Slippage can be marginally improved by increasing the SPI (Stitches per Inch) & Seam margin. If it is failing by Single needle stitch, then can try with Double needle stitch.

**d) Pilling resistance:**

Pilling is serious problem of textile industry. A finished fabric may have pleasing handle & smooth surface but when converted into garment & while wearing & as well as washing pills are formed due to rubbing action. First entanglement of loose fibres which protrude from surface takes place; this further appears like a ball anchored to fabric surface through unbroken fibre.

**Recommendation for Improvement:**

**Selection of fibres:** Manufacturing of yarn & fabric based on low pilling tendencies. Prevention of abrasion during batch processing by using suitable lubricant in pre-treatment as well as in dyeing process. Shearing & cropping with brushing to eliminate surface fibre & protruding fibres Singeing on both surface to remove surface fibres.

**e) Colourfastness to Light:**

It is resistance to degradation of fabric dyes & prints due to light is an important requirement of a garment because without such resistance, garment may change colour & such colour may not be acceptable to a consumer from an aesthetic point of view. Samples are placed in special holders & exposed to artificial daylight produced by a special light source which mimics action of sunlight, but in a more intense manner so as to speed up fading effect. A standard (blue wool reference) is also exposed with sample & colourfastness is being assessed by comparison of colour change of exposed portion to unexposed portion of test specimen using scale or blue references used.

**Recommendation for Improvement;**

Here regarding colour fastness to Light, there are certain controllable & uncontrollable factors. Uncontrollable factors are Light, Environmental factors such as temperature & relative humidity & controllable factors are chemical reaction of fading reaction, degree of dye association with fibre, diffusion characteristics of fibres, chemical nature of fibres, contaminants, delustrants, UV stabilizers & finishes. Thus by improving certain processing conditions & by using good type of stabilizers & finishes will improve light fastness.