

An Investigation on the Dependency of Bursting Strength of Knitted Fabrics on Knit Structures

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Abstract

Knitted fabrics bursting strength dependency was investigated. The investigation was by reviewing previously done and published research articles. In this investigation the dependency of bursting strengths on knit structures was identified and analysed. Different findings of different scholars on bursting strengths of different knitted fabrics have been discussed in this review.

Keywords

Bursting strength; Knit structures; Dependency

Introduction

Strength of the fabric is an important property that decides and influences all other performance properties of the knitted fabrics. Consideration of the strength of the fabric is very essential while selecting the appropriate fabric for the intended garment. The physical and mechanical properties of knitted fabrics are very important in many ways. Among these properties, the bursting strength is extremely important. Bursting strength is the force that must be exerted perpendicularly to the fabric surface to break off fabric. Bursting strengths of knitted fabrics can be affected by knit structure as investigated by different scholars

Materials

The materials used in this review are previously published articles those studied by different scholars.

Dependency of bursting strength on fabric structure

Fabric structures have significant effect on bursting strength of knitted fabrics. As Abd El-Hady and Abd El-Baky reporting their finding, bursting strength revealed that the effect of knit structure is highly significant in produced fabrics. Fleece fabrics have weaker bursting strength performance compared

with plush fabrics due to the tuck and miss loop in these structures. That higher tuck loop presence decreases the bursting strength; Miss Loop also reduces the bursting strength but bursting strength of miss loop containing derivatives is higher than tuck loop containing derivatives. The structures with the higher thickness have the higher bursting strength properties for both fleece and plush fabrics. This is most probably due not only to thickness, but also to stitches density. The number and position of tuck stitch has an effect on the bursting strength of knitted fabrics. Uyanik et al. reported the effect of number and location of tuck stitch by investigating twelve samples. As shown in Table 1, the number of tuck stitches found in one knit structure is different from the other. Similarly the position of each tuck stitch is different one from the other. This leads to the variation in the bursting strength of knitted fabrics. As Uyanik et al. described the number and locations of tuck stitches of the sample knitted fabrics are different from each other. To see the effect of the number and location of tuck stitches on the bursting strength of the fabrics, a graph was drawn, in Figure 2. According to Figure 2 the bursting strength of the sample knitted fabrics changes between approximately 363 to 774 kPa. Uyanik et al. [4] conclude that the bursting strength degree of the sample knitted fabrics, the values and patterns are evaluated together. Sample 1 is plain fabric and has no tuck stitch. The bursting strength of this sample is presented as a control group. As seen from Figure 3, the bursting strength of samples 3, 5 and 6 are lower than the others. The pattern designs of tuck stitches in these samples are not zigzag. When the location of tuck stitches are not in a zigzag form, the fabric will not pick up very much; in other words the loops inside the fabrics do not come together very much

Conclusion

Bursting strength of different knitted fabrics is dependent up on different factors. In this review we can understand that bursting strengths of knitted

fabrics are significantly dependent on fabric structures, fiber types and blends as well as yarns. These factors are the

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