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**APPLICATION OF THERMOPLASTIC STITCHED REINFORCED TAPE
FOR SEAM QUALITY IMPROVING**

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The seam performance has a significant impact on garment quality because joining garment pieces by seams is still the main technique for garment assembling. During the garment wearing and laundering, a lot of defects can arise, affecting seam quality, such as: seam slippage, seam tearing and seam deformation. Investigation of techniques to reduce seam slippage and increase seam strength and seam efficiency in the garment during production process is very important for the increasing seam performance and production of high quality garments. The purpose of this paper is to investigate the possibilities of improving garment seam properties by reinforcing the seams by thermoplastic stitched reinforced tape. This kind of tape is trim material belonging to the group of thermoplastic interlining, which is used to increase the stability of textile materials and give support to garment form. The aim of the investigation is also to evaluate the effects of seam tape reinforcing on seam performance.

In this investigation, the seam quality was evaluated by seam slippage, seam strength and seam efficiency. Three lightweight woven fabrics for ladies blouses were used. The fusing process was performed at the temperature of 135°C, 3 bar pressure for 13 seconds. Seam samples without reinforcement and reinforced with fused tape were sewn. A group of ISO standards (ISO 13934-2:2004 + ISO 13935-2:2004 + ISO 13936-1:2004) for determination of fabric strength, seam strength and seam slippage were used for seams testing. The samples were tested on ASDL Atlas tensile tester.

In the fusing process, interlining tape is fused onto the face fabric by melted thermoplastic polymer. As a result, the face fabric has increased bending rigidity and increased thickness. It was found that the seam strength, seam slippage and seam efficiency were increased for all seam reinforced fabrics with stitched fusible tape. Because the warp and weft fabric yarns in the fabric are fused together, the fabric structure becomes more consolidated and yarn slippage resistance increases. It was found that seam efficiency was increased for tape reinforced seams, due to the strengthening of the fabric structure in the seam area after the fusing process. Due to more complicated seam deformation of the seams with additional reinforcement, the seam under mechanical force requires extra energy which results in higher mechanical force for seam deformation. The obtained results have shown that, insertion of thermoplastic stitched reinforced tape in the seam construction, resulted in improvement of seam slippage, seam strength and seam efficiency.

Key words: seam reinforcement, stitched fusible tape, seam slippage, seam strength