

## **Effect of take-off stopping and washing process on selected properties of micro fibers pleated fabrics**

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Abstract:

**The competitive edge of any product either locally or globally depends on the extent of its performance and economical value. Pleated fabrics have a wide range of uses and its production needs special preparatory processes before and after the weaving process. In addition the special looms that are necessary for its production are not widely available in weaving factories. For the aforementioned reasons and the lack of detailed studies for this specific type of fabrics, this study aims to study the effect of the set variable (take off stopping –washing ) on the properties of pleated fabrics. Those fabrics were produced by a novel process on traditional weaving looms which were equipped with only one warp cylinder and thus not suitable for conventional pleated fabrics production. This was achieved without any special preparatory processes before or after the weaving process which in turn increases the competitive edge of those fabrics**

### **Statement of the Problem**

- **The special looms that are necessary pleated fabrics production are not widely available in dobby or jacquard weaving factories**
- **lack of detailed studies for this specific type of fabrics, especially those produced with warp micro fibres**

### **Objectives**

- **Determining the effect of stopping the take-off device during the production of the ground weave, or stopping it during the production of the pleats when using warp micro fibres and conventional one warp cylinder looms according to the here mentioned novel weaving process**
- **determining the effect of washing on the performance properties of pleated fabrics according to the here mentioned novel weaving process**
- **strengthening the marketing opportunities for pleated fabrics**

**This study follows the empirical analytical route . In this study the mechanical properties of polyester micro fibres yarns were utilized as warp yarns to produce crosswise pleats in pleated fabrics (either on one or both sides through the utilization of conventional weaving looms which were not specifically set up for**

these kinds of fabrics. The study was divided into three main parts; first weaving process, second washing process, and third testing

### **Major Results**

- stopping the take-off device during the production of pleated fabrics has an effect on the functional properties of those fabrics as listed in the following table.

Type of take-off stoppings	Air permeability	Stiffness	Ground thickness	Pleats thickness
During pleats formation	High	low	Low	Low
During ground formation	Low	high	Low	High

- Washing process affected fabric thickness, where all samples increased in thickness after washing
- Washing process affected fabric air permeability, where air permeability for all samples decreased after washing
- Washing process affected fabric stiffness, where stiffness for all samples increased after washing
- Possibility of using the produced pleated fabrics as winter or summer, or even as upholstery fabrics because of their aesthetical and functional properties