

## Effect of Using Microfiber Yarns in Improving of Performance and Comfort Properties of Summer Clothing Fabrics

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### **Abstract:**

Since the beginning of human life, clothing accompanies him and clings to him as a part of him. Therefore, it is called second skin, and this layer has the ability to protect the person from any external factors that may harm him, the basic requirements for clothes suitable for different conditions, whether hot, cold or wet, can be determined as follows: providing a feeling of physiological comfort, does not hinder movement, aesthetic appearance, endurance and longevity, easy care.

In recent years, there has been a significant of synthetic fibers, Microfibers have contributed to this major shift in both excellent endurance properties and desirable texture, which it is made of polyester, polyamide, polyacrylic , and viscose .It can mixed with cotton , linen , and wool with the wrinkles and ripples produced by the fibers , which give a high degree of air permeability , which is reflected on the quality and efficiency of the performance of the produced yarns and fabrics.

The research aims to study the specifications of summer clothing fabrics by determining the best raw materials for the produced fabrics and studying the basic requirement for summer clothing fabrics and the possibility of improving their job performance properties by studying some of the different mechanical properties on them, measuring them and then analyzing them.

Where 20 samples were produced, one warp was used for all samples 120/2 cotton, the number of warp threads 56 /cm, the fabric structure 1/1.

the research samples were prepared according to the variables set to test their effect on the properties of the produced samples, which first the difference in the weft material (cotton, polyester micro fiber, cotton & polyester micro fiber blended 66.6:33.3%, 50:50%, 33.3: 66.6%), second the difference of weft thickness (20/1, 40/1, 60/1, 80/1) third the number of weft threads (20 ,24 ,36, 48, 19,21 ,32,42 ,18.6,21.5,34,44) / cm.

After testing the physical and mechanical properties on the executed samples to determine the extent of their ability to achieve the most appropriate performance characteristics of summer clothing fabrics (thickness, weight, water & moisture absorption, air permeability, elongation, tensile strength & elongation for fabric, fabric stiffness, crease recovery, drying rate, fabric pilling fabric abrasion resistance) .

Then the results were discussed and statistically analyzed to identify the sample that gives the best level of functional performance in the samples under study, it turns out that the sample number: 8 (42 weft threads/cm, weft thickness 80/1) then sample number 5 : (19 weft threads/cm, weft thickness 20/1) and sample number 7: (21 weft threads/cm, weft thickness 60/1) , gave the best results according to a total quality assessment method & all of them made from 100% polyester microfiber.

**Keywords:**

Properties - Summer Clothing Fabrics- Comfort Performance- Cotton- Physical & Mechanical Properties Microfiber