

## **The Effect of Different some Structural Factors "The kind and density of wefts" and Sewing Seams on The Functional Performance of upholstery fabrics**

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### **Abstract:**

In addition to the lack of research on the effect of structural factors and the different seams process on the functional performance of the upholstery fabrics, this study was conducted to identify the effect of some structural factors for these fabrics. Synthetic yarns such as (polyester texture, polyester flat, polypropylene) used as wefts, densities of these wefts (15-20-25) per cm, and some types of seams during fabric production (simple seam - compound seam - French seam), For the purpose of producing furniture fabrics with more characteristics suitable for the functional performance produced for it (upholstery fabrics) using some structural structure variables (different yarns of different density) and different seams, with consistency of fabric and texture composition used, showing the importance of research in determining the most important factors affecting Producing distinct types of upholstery fabrics suitable for efficient use as upholstery fabrics, and their reflection on their functional performance. The applied statistics were used to compare the above variables, and the statistical radar was used to select the best research samples produced after the mechanical tests on the finished products.

There was a clear variation in the test results of the samples under study (tensile strength, friction resistance and tear resistance), which showed a direct effect of the materials and the density of the wefts and the quality of the sewing seams on the different characteristics of the functional performance of the fabrics produced, Of the final product

### **Keywords:**

Structural Composition Factors - Textile Density - outer clothing –sewing seams - polypropylene - Polyester – upholstery fabric- synthetic yarns

### **search problem**

The lack of research on the effect of the difference of synthetic yarns and the sewing seams used on the functional performance of the upholstery fabrics.

### **Search aim**

The production of furniture fabrics with more suitable properties for functional performance produced for it (upholstery fabrics) using some structural structure variables (different yarns of different density) and different sewing seams.

## search importance

Determining the most important factors affecting the production of distinct types of upholstery fabrics suitable for efficient use as upholstery fabrics, and their reflection on their functional performance.

## Research Definitions:

The research is limited to the study and comparison of the fabrics of the fabrics produced by the change. Some of the structural factors of the fabrics (yarns and their density) and the seams used in the manufacture.

## Research methodology:

- Three types of synthetic yarns used (polyester texture, polyester flat, polypropylene). The fabrics will have produced in three different densities (15-20-25) per cm, according to the following next table:
- Three types of sewing seams were used to produce the upholstery fabric on each of the three synthetic yarns and each of the three densities (simple seam - compound seam - French seam),

Material (yarns)	Polyester Texture			Polyester Flat			Polypropylene		
Seams \ Weft densities	20	25	15	15	20	25	20	25	15
Samples	Sample1	Sample2	Sample3	Sample4	Sample5	Sample6	Sample7	Sample8	Sample9
Tensile strength	58.7	69.7	57.2	71.3	72.0	81.6	91.3	95.5	86.7
Tear resistance	69.4	71.8	68.5	72.7	75.5	76.7	80.6	85.7	79.8
Friction resistance	3-4	3-4	3-4	3-4	4	4	4	4	4
Simple seam	Sample10	Sample11	Sample12	Sample13	Sample14	Sample15	Sample16	Sample17	Sample18
Tensile strength	97.2	99.3	95.7	100.1	101.5	103.6	106.2	107.4	101.5
French seam	Sample19	Sample20	Sample21	Sample22	Sample23	Sample24	Sample25	Sample26	Sample27
Tensile strength	99.6	102.7	98.7	102.3	102.9	104.7	107.6	109.2	105.3
Compound seam	Sample28	Sample29	Sample30	Sample31	Sample32	Sample33	Sample34	Sample35	Sample36
Tensile strength	101.3	103.6	100.6	104.6	105.1	106.2	108.3	111.7	107.2

## Research Results:

- 1- Polypropylene yarns achieved the highest values for tensile strength and tear resistance, while texture polyester achieved the lowest values for these properties in the produced fabrics.
- 2- Polypropylene and flat polyester yarns achieved the highest values for friction resistance, while texture polyester yarn achieved a lower value for friction properties.
- 3- (25)weft\cm achieved the highest values of the properties of tensile strength and resistance to tear, while (15)weft\cm the lowest values of these properties, in the fabrics produced.

- 4- Polypropylene yarns achieved the highest values for the strength of the sewing strength, while the polyester yarn was the least value for the strength of the sewing strength.
- 5- The composite (English) seam achieved the highest values of the sewing tensile strength, while the basic seam achieved the lowest values of the strength, and achieved the French seam intermediate values between the two mentioned above.
- 6- (25)weft\cm achieved the highest values of the sewing strength, while (15)weft\cm) the lowest values of the sewing strength.
- 7- The highest sewing strength for the best research samples were all for the English composite seam.
- 8- The sample number 35 (Polypropylene – 25 weft\cm) was the highest with a sewing strength (111.7) through quality transactions.
- 9- The quality of the main research samples according to the relative values of the functional characteristics of each sample were as follows: Sample 8 was ranked first with a quality factor (100%) followed by sample (7) with a quality factor (96.65%), then sample (9) Quality (94.97%), all polypropylene material according to the number of hides in the fabrics produced, followed by the other samples according to the quality coefficient of each sample.

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