

Functional properties of the processed fabrics used in the upholstery of traditional sofa furnishings (Baterma) in the Kingdom of Saudi Arabia

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Upholstery fabrics are an important textile that no home can dispense with because it is one of the basic elements for its furnishing and this type of fabrics is known as “heavy-duty fabrics,” which are those fabrics that are used in the upholstery of traditional sofas in the Kingdom of Saudi Arabia, which is considered one of the most important materials that have been able to It occupies the forefront of its products for reasons that cannot be ignored, which is durability and a sense of comfort, especially for those with sensitive bodies. Cotton occupies 57% of the volume of the textile materials market for its distinctive properties because it contains cellulose by 96: 84% in addition to protein, wax, mineral materials and dust, and after some operations Processing and treatment such as bleaching process, the percentage of cellulose is approximately 99% among the main factors that a textile designer relies upon in achieving the natural and mechanical properties of fabrics .. The textile structural composition of the fabrics, which plays an important role in determining the quality of the functional performance of the textile product.

- The number of the thread for both warp and weft
- The density of both warp and weft threads per unit of measurement
- The histological composition used
- Final processing of fabrics
- The method of spinning used for both warp and weft yarns

Research Problem

- The scarcity of studies and research related to upholstery fabrics for traditional sofas in the Kingdom of Saudi Arabia in terms of being highly durable fabrics.
- The presence of large quantities of damaged sofa upholstery fabrics that are not being used to achieve economic and functional feasibility.
- The need to develop technical specifications and standards related to the elements and variables of the production of these fabrics

The inappropriateness of the local product in the Saudi market functionally and economically (which was confirmed by the exploratory study of the research)

Research aims-

- The use of different tiger weft yarns resulting from the open end spinning stages. Production of durable upholstery fabrics that achieve the functional performance of fabrics (traditional sofa upholstery in the Kingdom of Saudi Arabia)
- Improving the properties of the sofa upholstery fabrics by using some final preparation methods.

Research Importance :

Developing the level of functionality for traditional sofa upholstery fabrics in the Kingdom of Saudi Arabia• Introducing new textile quality and productivity standards for traditional sofa upholstery fabrics• Satisfying consumers ' desires to obtain a durable product with economies that are appropriate for the prevailing economic level in the Saudi society.

Research hypotheses: -

The current research is based on the following hypotheses: Presenting and describing the structural elements and variables of the histological structure that can achieve a new vision that can be used in developing the quality and aesthetics of the Product.The use of the proposed chemical treatments can contribute to improving the quality of the product.

3- Using yarns spun by the method of ring spinning and employing them in the production of new fabrics that can achieve new functional and productive value for heavy-duty fabrics (upholstery of traditional sofas in the Kingdom of Saudi Arabia)

The Limits of The Study: -

- Weft yarn spun by the Open-End Spinning method.
- Producing tiger weft yarns 1/10 cotton, 1/12 cotton, 16/1 cotton.
- The production of fabrics by using three different tiger headers, which are 1/10 cotton, 1/12 cotton, and 16/1 cotton
- The use of three different seat densities: 16 / cm - 18 / cm - 20 / cm and fixing the rest of the fabric elements and variants.
- Producing highly durable fabrics with functional properties that mimic and match the nature of traditional sofa upholstery fabrics in the Kingdom of Saudi Arabia in terms of: tensile strength and elongation, friction resistance, dimensional stability, and the weight of a square meter of fabric.

Research Methodology

Due to its nature, this research depends on the experimental method, Three different tiger bristles were produced from the open end spinning method, which are 1/10 cotton, 1/12 cotton, 16/1 cotton and the weft density: 16 wefts / cm, 18 wefts / cm, 20 wefts / cm) with specifications and functional properties Suitable for use in the upholstery of sofa and traditional tent boards using a black 1/12 cotton tee, and a textile installation (1/2 coolant), and after producing the experimental samples, some laboratory tests were carried out in the laboratories of one of the major textile industry companies in the Arab Republic of Egypt in accordance with the specifications and laboratory standard standards for properties The test is: Tear test in the direction of the warp - Tear test in the direction of the weft - Test of tensile strength in the

direction of the weft - Test of tensile strength in the direction of the weft - Test of stiffness - Test of square meter weight - Test of friction and stress.

Results

After tabulating the results of testing the yarns and fabrics and analyzing them statistically .. The study concluded: Fabrics produced from weft yarns spun by the open end yarn method of 10/1 with a weft density of 16 / cm are the best samples produced in the tested properties .. The study also confirmed the The increase in the thickness of the thread increases the resistance of the fabrics produced to tearing in the direction of the warp and the increase in the number of the flywheels decreases the resistance of the fabrics produced to the tear in the direction of the warp also, with the increase in the thickness of the weft thread, the tensile strength decreases in the direction of the weft, while the increase in the number of the beams increases the tensile strength in the direction of the weft. With the increase in the thickness of the weft thread.,The weight of the square meter and the stiffness of the fabrics produced under study decrease, while the increase in the number of axes increases the weight of the square meter and the stiffness of the fabrics. The study finally reached a set of recommendations and proposals for future research as follows:

Recommendations

- 1-Expanding studies and research on the elements and variables of the structural fabric of all kinds, shapes, and ways to benefit from them in improving the production of traditional sofa upholstery fabrics in the Kingdom of Saudi Arabia
- 2-The necessity of activating the after-sales service at the marketing and production centers in order to make a census and estimate the level of quality and performance of sofa upholstery fabrics and to work on frying them to the extent that increases the product's consumption life
- 3-Disseminating the methods used in the current research and the results of this research at the productive level in spinning and weaving factories and companies, and trying to open markets for fabrics produced for the upholstery of traditional sofas in the Kingdom of Saudi Arabia
- 4-Establishing research centers whose mission is to supply the productive units in the factories with the results of applied research in order to promote the national industry.

Proposals for future research:

- 1-The effect of the difference in the type of final finishing on the quality and functional characteristics of the traditional sofa upholstery fabrics in the Kingdom of Saudi Arabia.
- 2-The effect of different structural factors and the color effects of warp or weft or both of cotton fabrics on the functional and aesthetic properties of the produced fabrics.

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