STATISTICS ON IMPROVING THE QUALITY OF TEXTILE PRODUCTS IN DEVELOPED COUNTRIES AND UZBEKISTAN

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https://doi.org/10.5281/zenodo.10968884

Abstract. *Today, the textile and sewing-knitting industry is one of the leading and rapidly developing industries in the New Uzbekistan. This study covered issues on improving the quality indicators of local knitted products.*

Keywords*: textiles, technologies, manufacturing, nano-technologies, 3D fabric, intelligent fabric.*

Among our local scientists M.R. Boltaboyev, Z.D. Adilova, Kh.I. Kholikova, M. Toshpolatov, Q. Sharipov, P. Ismatullaev, Sh. A. Toraev, I. Ikromov, J. Kambarov, G. Samatov, A. A. Mamajonov, G. Kasimov conducted scientific research The problems of improving the system of evaluation of quality indicators of textile products have been researched in the scientific works of many foreign scientists, in particular L. Val`ras, M. Kane, U. Jevons, D. Locke, K. Menger, P. Samuelson. Regarding eco-labeling of products, M. Koshevska, S. Grishanova, D. Rebessa, M. Garaus, Charu Grover, Sangeeta Bansal, M. Tatarinova, Jordan, A.; Wurzel, R.; Zito, A.; Brückner, L.; Laroche, M.; Bergeron, J; Barbaro-Forleo, G. has been studied to some extent in the scientific research and research.

In the production of knitted products in the world, the issues of expanding the range of competitive products, producing high ecological products using natural raw materials, using new types of raw materials and processing methods, improving the quality of knitted products and reducing the consumption of raw materials occupy a leading place. In this respect, one of the important tasks is to create a technology for the production of knitted products with high shape retention and hygienic properties, with a reduced cost, by effectively using raw materials and changing the fabric structure.

Our country produces ribana, futer, and pique types of knitted fabrics. Knitted fabrics should have characteristics of use depending on the purpose and meet standard requirements.

Quality indicators of knitted fabrics must meet the following requirements:

1. Strength-the fact that knitted fabrics have the characteristics of durability, resistance to stretching, friction, non-shape change, compression and bending resistance to breakage;

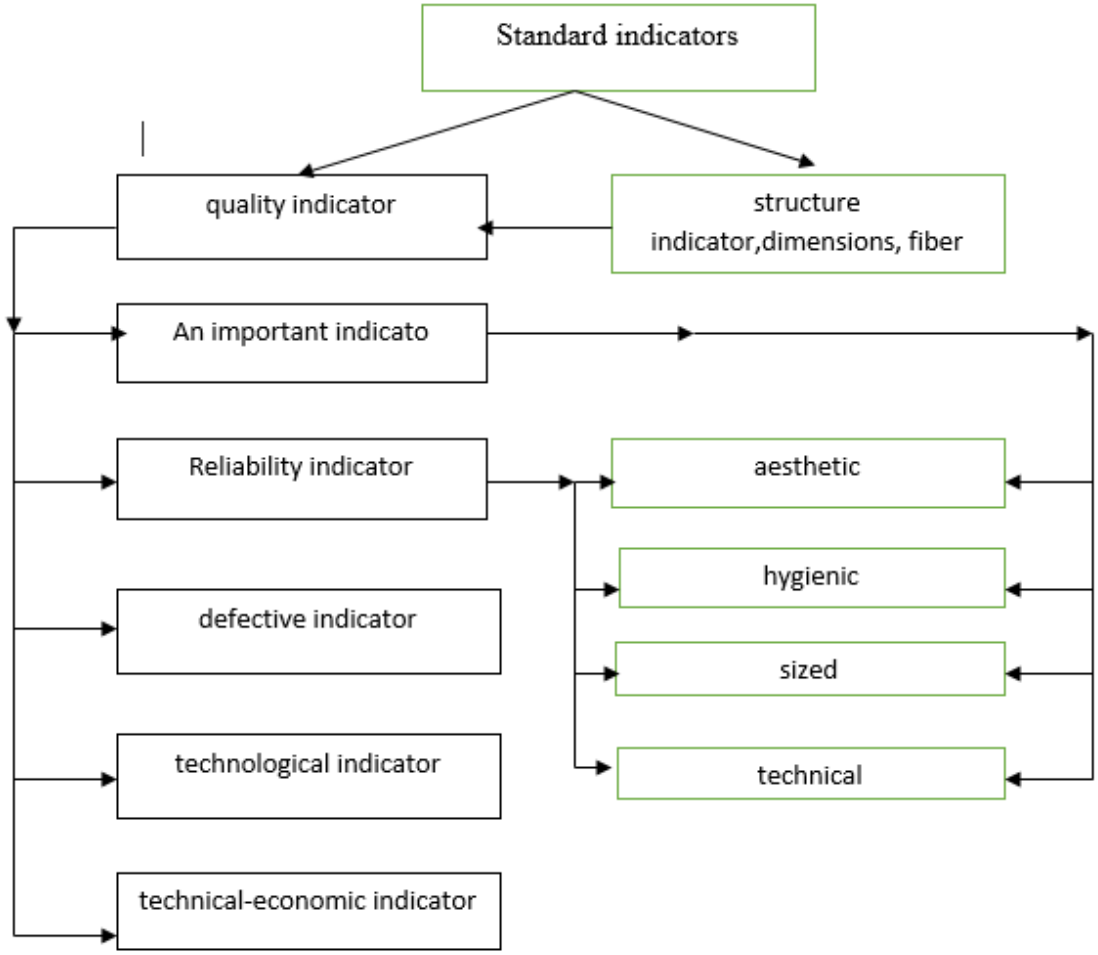
2. Stretchability-knitted fabrics will have the property of stretching under the influence of force. In this case, the stretch is characterized by lengthening, depending on the type of knitted weaving

3. Elasticity-the ability to take the original shape of the fabric after removing the load caused by deformation is one of the characteristic features of knitted fabric. Elasticity is determined by the amount of elasticdeformation it depends on the elasticity, weaving density and weaving structure of the threads or threads.

4. Friction resistance-characterizes the ability of knitted fabrics to maintain volume and shape under various influences, in particular, at certain limits during wet, heat treatment.

Measurement stability can be estimated by the value of residual deformations during repeated and repeated stretching, shrinkage during wet processing,and chemical, bending hardness.

5. Hygienic properties-hygienic properties in contrast to the above-mentioned properties of knitted products convenience of the product. These include heat protection sword properties, air and vapor permeability, hygroscopicity,water absorption, electrical resistance dust capacity.



6. Air permeability is the air permeability of a material. Due to the structure of the bag, the “breathing” ability of knitting is relatively high, so knitting is considered more hygienic than other fabric products.

7. Thermal properties-knitted fabrics used for the manufacture of clothing, depending on the season and climatic conditions, should protect a person from the cold or ensure the spread of heat.

8. Aesthetic properties-the color of knitted fabric plays an important role in the formation of aesthetic properties of products. It must meet the requirements of fashion as well as the conditions of operation of the product. The color creates a certain visual perception, and also affects to some extent the heat protection properties of knitting. In addition to color, a pattern is also involved in the formation of the aesthetic characteristics of knitting. Knitted fabrics can be used to make more varied and elegant underwear and other products.

9. Technological features-a number of technological features of knitted fabric determine the processing methods and quality of the product. Thickness, density is of greatest importance. the thickness of the knitted fabric depends on the type of weaving, the type of machines.

10. The density of knitting is one of the characteristic indicators of the quality of the fabric. The density of knitting affects its appearance, strength, stretch, thickness, mass, porosity, etc. The density of the knitting will depend on its appearance, strength, stretch, width, mass.Quality indicators applied to knitted fabrics play a key role in ensuring the safety of knitted fabrics.

Textile production is very complex and involves many mechanical and physicochemical processes. This is often harmful to both the environment in terms of energy, water and chemicals, and to the health of employees in manufacturing processes. Nevertheless, the innovations of the production in each period were in the attention of everyone. Weaving is becoming more advanced thanks to the achievements of new technologies. To any corner of the world, bormen could not find production without innovations and advanced technologies in all areas. In all the search, you will see that someone has done something, someone has made some progress. It was achieved that the placement of electronics in textile fabrics became urf. Designers began to integrate intelligent technology in the fabric. These innovations not only increase the quality and functionality of textiles, but also revolutionize our approach to fabric production and its use. Let's make an analysis of such cases:

Integration of electronics into fabric: the integration of electronics into fabrics has led to the development of "smart textiles". These fabrics can interact with the environment, offering features such as temperature regulation, UV radiation protection and even health monitoring. This can lead to a number of consumer amenities. But there is another side to this that not everyone can use such fabrics because the price of the fabric varies dramatically compared to ordinary textile fabrics as you can notice that the price will be much higher. Most of the entire population of the world is made up of the poor, which it seems that they cannot use in such products.

Wearable technology: after the introduction of electronics into the fabric, a combination of fashion and technology occurs in itself. In this matter, designers will launch the creation of wearable technologies, such as fitness surveillance clothing, lighted clothing and built-in screen clothing for digital interaction, starting.

Another innovation in textiles is 3D printing and textiles. 3D printing technology is used to create highly customized and complex textile structures. This technology allows precise control over the material composition, structure and design of the fabric. 3D printing is the process of creating 3D objects by combining or solidifying material under computer control. In this process, a computer-generated design is transformed into a 3D object by printing material layer by layer and combining them into a cohesive object. This technology is widely used in both prototyping and additive manufacturing. This technique has been around for over 30 years. The first patent related to 3D printing was granted in 1986 to American Chuck Hull, founder of 3D Systems, for Stereolithography apparatus. Around the same time, the Massachusetts Institute of Technology (MIT) coined the term 3D printing based on their research into the technology. 3D printing is limited to its use in the jewelry and sportswear segments of fashion. Brands such as Nike and Adidas are using this technology to produce high-performance cushioning and shoe soles, usually made from foam. NASA is also using this technology to produce 3D-printed chainmail material used for protective armor for astronauts.

Advantages of 3D printing

• With 3D printing, we use the raw materials needed for printing, which means we eliminate the need for additional raw materials, because we can print the exact size of the panel for each garment.

• In addition to zero waste, 3D printing eliminates labor-intensive processes from the entire garment manufacturing cycle and reduces labor costs.

• In addition to cost savings, another major benefit of 3D printing is improved quality, as occasional human error is eliminated during the manufacturing process.

Disadvantages of 3D printing in fashion

• We still have a long way to go when it comes to 3D printed textiles. Currently, 3D printed textiles and clothing items cannot provide the comfort and flexibility that clothing is expected to provide. They do not absorb moisture, because the layers of raw materials are combined with each other and do not leave an air gap.

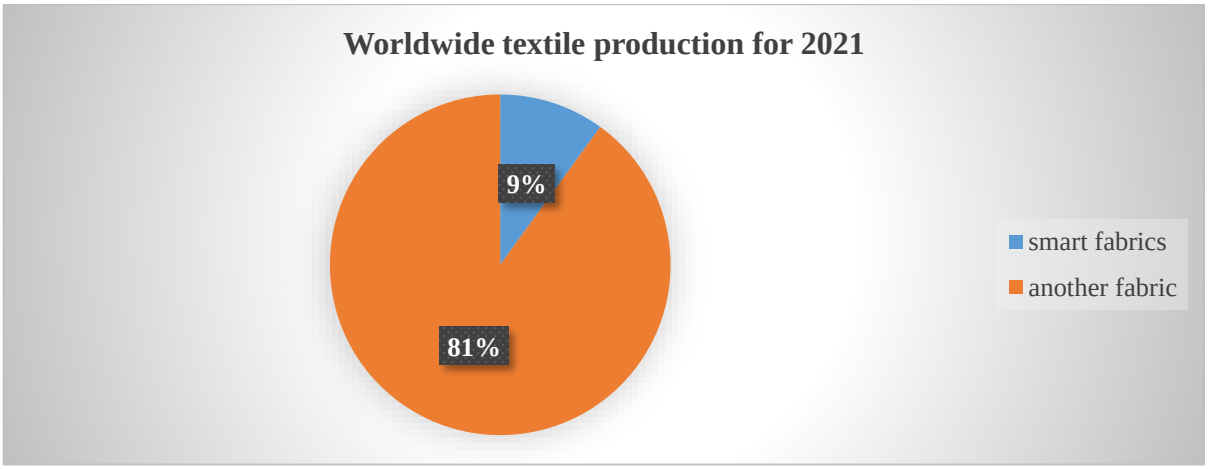
• Beyond the material challenges of 3D printing, more research is needed to understand how design elements can provide permeability and breathability to 3D printed garments.

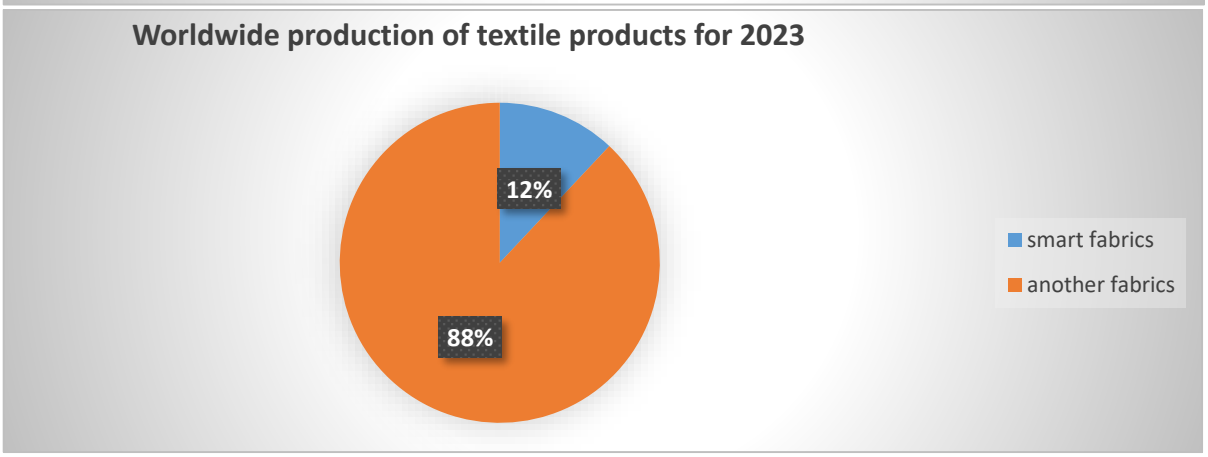
• Also, 3D printed textiles cannot be sewn into garments like conventional manufacturing. Alternatives such as melting the edges and joining them to other panels are being explored, but we are still in the early stages.

• Finally, the cost of material for 3D printing of textiles and clothing is high. It may be possible to produce prototypes and limited parts, but for mass production we still need to identify the materials that make the process commercially viable.

Use of nano technologies in textiles. We will consider several features of nanotechnology in textiles. First of all, I would like to remind you that when a new innovation is achieved in textiles, it is definitely used in the military, space and medical fields first, because these fields have a high place in the financing of simple innovation. The concept of "nanotechnology" was introduced in 1959 by the American physicist Richard Feyman. The size of nanoparticles is from 0.1 to 100 nm. Nanotechnology is defined as the technology of manufacturing materials through the controlled manipulation of atoms, molecules and extremely small particles to produce materials with fundamentally new properties. This is a kind of "genetic engineering", but with inanimate objects. The insignificant size of the particles that make up the material dramatically changes its structure, increases the internal surface, and leads to the appearance of new properties. The internal structure created by nanoparticles gives the materials very high strength and completely new properties that are not available in the production of materials using traditional technology. For example, normally brittle ceramics exhibit ductility when manufactured using nanotechnology. Nanotechnology is used to give fabrics new properties such as waterproofing, stain resistance, durability and even antimicrobial properties. One of the most exciting innovations is the development of self-cleaning fabrics, which break down dirt and bacteria when exposed to light. The task of researchers is to give textile products the same effect characteristic of living nature: plant leaves, butterfly and insect wings, beetle shells. Nanoemulsions form a thin three-dimensional surface structure on the fibers, from which water, oil and dirt are easily washed and washed away. The resulting "superhydrophobic" effect means that a round drop formed on the surface of the material can roll without a trace even at the slightest inclination. Contaminants such as dust and soot are removed together with water droplets, and the material has a "self-cleaning" effect. The use of nanoemulsions makes it possible to obtain textile materials from cotton, the front side of which has hydro, oil and dirt repellent properties, while the back side remains hydrophilic, able to absorb body moisture (sweat). At the same time, such material can be given various bacteriostatic effects, including preventing the appearance of sweat odor. The main purpose of such materials is the production of army equipment, sportswear and clothing for active recreation.

DC Mobile Device Trackers presented the following analysis for 2021 and 2023. According to it, the production of smart fabrics in the whole world in 2021 is 9%, and the share of other fabrics is 81%. By 2023, this indicator has increased by 3% for smart fabrics.





In conclusion, it can be said that innovative fabric is undoubtedly the future of the textile industry. Despite its relatively high price at the moment, scientists will improve it in the future. It is clear that the smart fabric market is in the 1st stage of development. At the moment, directions are forming at a high speed of development in this direction, and the issue of mass demand for smart fabrics only requires an increase in knowledge on innovative textile fabrics along with time. This is already forming mechanisms for large companies to transfer their capabilities to innovative types of fabrics with enhanced functionality.

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