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## **TECHNOLOGICAL PROCESS OF USING CHEMICAL YARN TO INCREASE THE SOFTNESS OF FLUFFY FABRICS**

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**Anntotion:** This article presents the types of fluff fabrics, the sequence of technological processes in production, areas of use, and the technological processes of using water-soluble chemical yarn to increase the fluffiness and hygroscopicity of fluff fabrics. It also provides information on obtaining new possibilities in fabrics based on mixing the chemical yarn minwal yarn used in the production of fluff fabrics with cotton fiber yarn, the process of obtaining mixed yarn, test experiments carried out on the resulting fabrics, and conclusions and suggestions based on the results of the experiment.

**Аннотация:** В статье представлены виды пуховых тканей, последовательность технологических процессов их производства, области применения, технологические процессы применения водорастворимой химической пряжи для повышения пушистости и гигроскопичности пуховых тканей. Приведены сведения о получении новых возможностей в тканях на основе смешивания химической пряжи минвал, используемой в производстве пуховых тканей, с пряжей из хлопкового волокна, процесс получения смесовой пряжи, проведенные опытные испытания полученных тканей, а также выводы и предложения по результатам эксперимента.

**Key words:** Fluffy fabric, fluffiness, hygroscopicity, mintwal, water solubility, reverse twist, softness, number of twists, twisted yarn, warp, weft, strength.

**Ключевые слова:** Пушистая ткань, пушистость, гигроскопичность, минтвал, растворимость в воде, обратная крутка, мягкость, количество круток, скрученная пряжа, основа, уток, прочность.

### **Introduction:**

Nowadays, the demand for textile products is growing day by day. From year to year, the number of spinning, knitting, weaving enterprises is increasing, which is giving impetus to the rapid development of the light industry. People's demand for food and clothing never decreases. They pay special attention to their appearance. This has

led to the creation of new types of fabrics that give aesthetic pleasure.

The republic is implementing comprehensive measures aimed at organizing the production of a wide range of high-quality textile and sewing and knitting products, deepening the localization of their production, as well as increasing the export potential of local manufacturers. Over the past period, the necessary legal framework and favorable conditions have been formed for the development of the textile and sewing and knitting industry. Increasing production capacity based on scientific and technological progress is the basis for the prosperity of our national economy. The increasing demand for various types of clothing and products in the global textile industry and the use of new techniques and technologies to meet these demands are taking a leading position. Among the textile products produced in our country, fluffy fabrics are one of the products with a high export rate.[1]

**Methods:** The qualitative characteristics of yarns spun in various ways as warp and weft yarns in the production of woven fabrics were studied. In the production of fluffy fabrics, cotton yarns and, in some cases, chemical fiber yarns and yarns obtained by interlacing them are used. Interlaced yarn is formed by interlacing two or more single yarns of a certain linear density and twisting them.

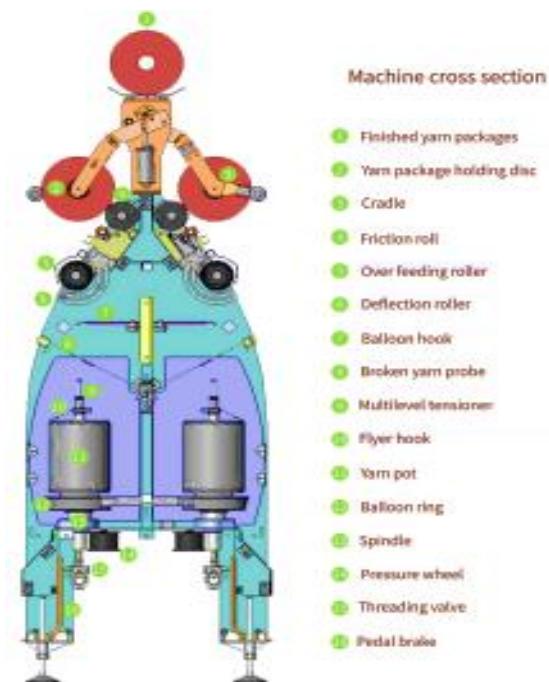


Figure 1. TFO (two for one) twister machine DM-07

When twisting individual yarns together, the following positive indicators can be achieved:

- increase the breaking strength, smoothness, bending, elongation, resistance to friction and bending, flatness and balance of the yarn;
- obtain twisted shiny shaped yarns;
- when yarns of different linear densities are combined and cooked, a shiny crepe-

like yarn is formed and a shiny fabric is obtained from it.

In some cases, to give additional properties to the yarns, new assortment products are also obtained by twisting them together with chemical yarns. Mintval-chemical yarn is a polymer in composition and is considered a yarn that melts under the influence of heat and in water at a temperature of 80 0C. Mintval-chemical yarn, since its composition is a polymer, combines well with natural fiber yarns and allows for easy addition and winding. The polymer properties of this chemical yarn are better than other chemical yarns, which affects its solubility properties. When cotton yarn is combined with "mintval" chemical yarn, the "mintval" chemical yarn melts during the finishing process, but does not change the properties of the cotton yarn.[2]

### **Results:**

Fluffy fabrics can be made from a variety of fibers. Sometimes the fibers contribute to the softness, but in many cases the softness is created during the manufacturing process. Fluffy is a soft, shiny-looking fabric made from polyester or cotton (or a blend of the two). Fluffy is known for its insulating properties. Unlike wool, it is lightweight, very comfortable, and allows moisture to dry quickly, making it a favorite in the winter. This type of fabric is very breathable and sweat-wicking, making it a great choice for sportswear.[3]

The properties of the manufactured fabric include its capillarity, hygroscopicity, air and vapor permeability, dust absorption, electrification, optical properties, and heat retention.

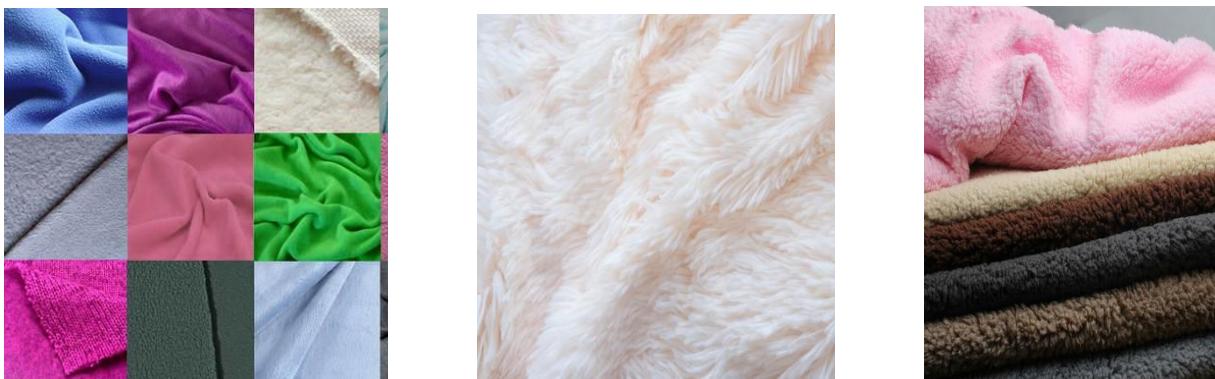


Figure 2. Fluffy fabric types

Hygroscopicity - determines the property of the fabric to absorb moisture from the environment (air). Hygroscopicity (Wg %) is the moisture content of the material at a relative humidity of 100% and a temperature of  $20 \pm 2^{\circ}\text{C}$ .

When assessing the hygroscopic properties of textile materials, their true moisture characteristics are often used. True moisture (Wh %) indicates the amount of moisture in the fabric at the true humidity of the air.

The main requirement for fluffy fabrics is that they be soft and gentle on the

human body. The next main feature is their ability to absorb water well, and these requirements are also set. This is also taken into account in the state standards for each fluffy fabric. Therefore, the lower the density of the threads in the fluffy fabric, the better this fabric absorbs water.

### **Conclusion:**

In conclusion, it can be said that although the share of manufactured and processed products in the domestic and foreign markets is significant today, there is room for further increase. This makes it urgent to focus on saturating the domestic market and increasing the competitiveness of export-oriented products. Achieving sustainable development and increasing the competitiveness of the national economy requires having an advanced innovative economy. To achieve this, it is necessary to create equal competitive opportunities in the domestic market for all commodity producers, that is, to create a favorable macroeconomic environment, support national producers in foreign markets, and at the current stage of economic development, the state must develop a long-term competition policy that proceeds from national interests and takes into account the global situation.

Therefore, we need to produce fabrics of a new assortment, to produce durable fabrics that fully comply with world standards with an innovative approach to the technological process.

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