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Effect of Secondary Raw Material on the Technological Signatures of Non-Woven Fabrics

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ABSTRACT: The article describes about the samples of cotton fiber and silk waste from the carding machine at the spinning mill were taken 100% cotton fiber, 50% cotton fiber, 30% silk, 20% mulberry bark waste, 70% cotton fiber, 15%, silk 15%, mulberry bark waste, 75 % cotton fiber 10% silk 15% mulberry tree bark waste fiber mixtures were produced by non-woven fabrics by the weaving method on.

KEY WORDS: non woven fabric, linear density, bulk density, surface density.

I.INTRODUCTION

Non-woven fabrics are produced in raw or decorative (such as bleaching or dyeing) depending on the intended use. The development of scientific research and industry, the diversity of raw materials, the breadth of opportunities for their diversification is leading to an increase in methods of making non-wovens [1]. It is impossible to get all the necessary information about the fabric by the name of any method. Because factors such as raw material, equipment type and fabric qualities can be repeated in different options. Depending on the type of raw material used, the basis of non-woven fabrics consists of bedding or yarns made of scattered fibers, fabrics and other polymer layers. Linings and yarns can be made from the same or a mixture of different fibers depending on the fiber content. In the manufacture of some types of fabrics, low-density or mesh fabrics are used in combination with a fibrous layer [2-3].

In the production of non-woven fabrics are used all types of fibers, secondary raw materials, various yarns and tan fabrics as raw materials. Since each of them has its own geometric, physical and mechanical properties, it should be prepared to obtain non-woven fabrics. Preparation processes and equipment are selected according to the type of raw material [4].

Many wastes and secondary raw materials are used in the production of nonwovens. In processing them, more attention should be paid to the processes that take place before mixing. This is because each type of waste differs from the others in its composition, fiber content and fiber quality. Depending on how many types of waste and fiber are in the mixture, several networks are formed in the initial stage of the aggregate. After mixing them, you can continue to grind and clean together.

By the method of knitting and cutting for the production of non-woven fabrics are used different types of fabrics made of weft yarns. In the production of non-woven fabrics are used different types of fabrics made of tanda yarns.

Technological parameters of non-woven fabrics include mass, thickness, width, length of yarn per 1 m^2 of fabric, linear density, surface density, volume density [5].

The degree to which the surface of the fabric is filled with threads indicates that their surface is filled, and the degree of filling with volume indicates that they are filled in volume.

The structural characteristics of non-woven fabrics obtained by the weaving method include [5].

The linear and specific indexes of nonwovens is determined by the method of determining the performance of the fabric. That is, the length of the linear indicators, with a ruler of millimeters in width, the thickness is determined on a tolshchinomer instrument.

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II. SIGNIFICANCE OF THE SYSTEM

To determine the technological indexes of nonwoven fabric were used 100% cotton fiber, 50% cotton fiber 30% silk 20% mulberry bark waste, 70% cotton fiber 15% silk 15% mulberry bark waste, 75% cotton fiber 10% silk 15% waste fiber mixtures derived from mulberry bark.

The results of the study are shown in Figures 1 and 4 below.

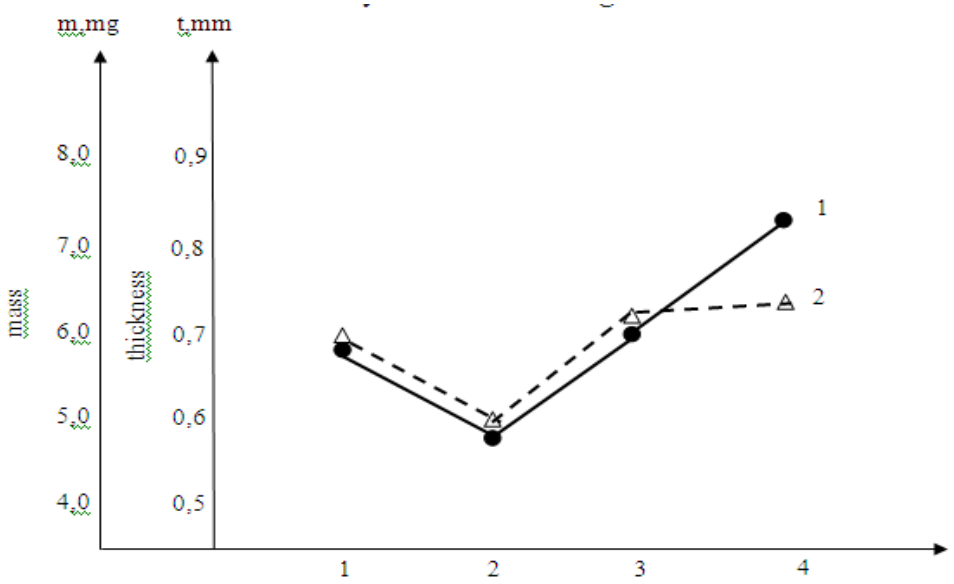

Figure 1. Influence of the secondary raw material composition on the mass and density indicators of non-woven fabrics.
1-mass;
2-thickness.

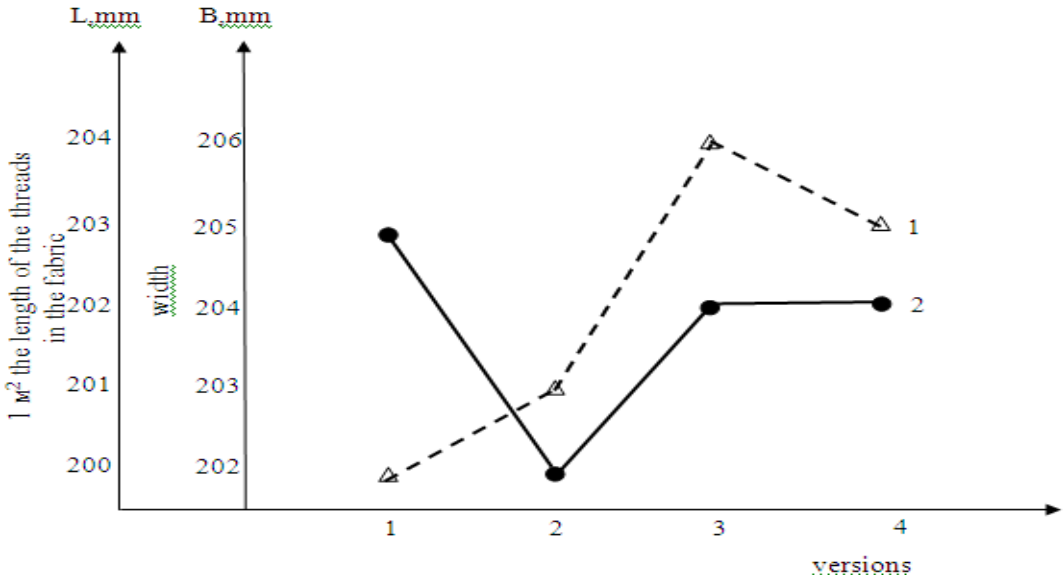

Figure 2. Influence of the secondary raw material composition on the width of nonwovens and the length of yarns per 1 m2 of fabric.
1-width;
2-Length of threads in 1 m2 of fabric.

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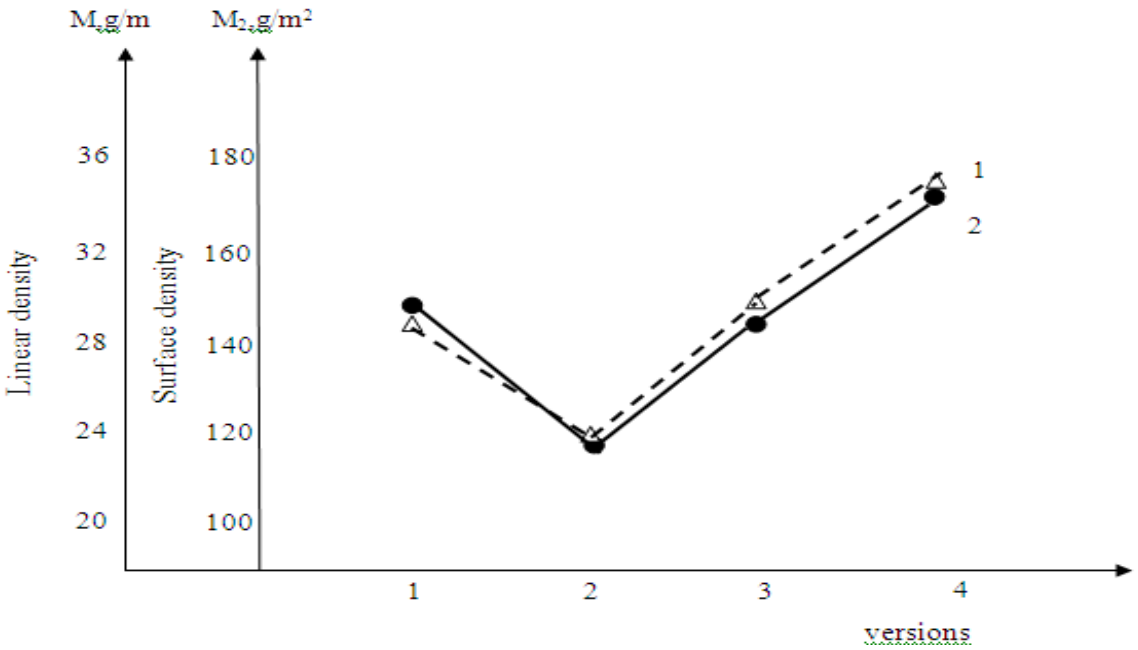

Figure 3. Influence of secondary raw material composition on linear density and surface density indicators of non-woven fabrics.
1- Linear density;
2- Surface density

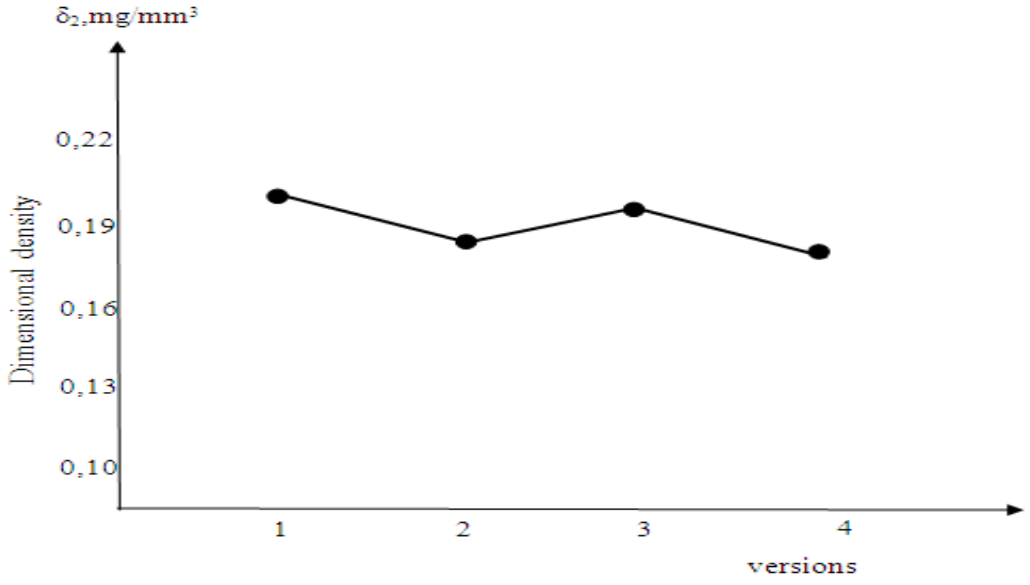

Figure 4. Influence of secondary raw material composition on the volume density index of non-woven fabrics

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III. LITERATURE SURVEY

If we compare the results of the research with the performance of non-woven fabric obtained from 100% cotton fiber waste, 50% cotton fiber 30%, silk 20% mulberry bark extracted non-woven fabric by 17.1%, thickness 13.1%, width decreased to 1.4 %, the length of yarn per 1 m^2 of fabric increased by 0.5%, linear density decreased by 17.4%, surface density decreased by 16.3%, volume density decreased by 5.0%, 70% cotton fiber 15% silk 15% the mass of non-woven fabric extracted from mulberry bark increased by 2.8%, thickness by 2.8%, width decreased by 0.5%, yarn length per 1 m^2 of fabric increased by 1.9%, linear density increased by 1.03%, surface density increased by 1.3%, volume density did not change, 75% cotton fiber 10%, silk 15% mulberry. The mass of non-woven fabric separated from the bark of the tree increased by 20.6%, thickness by 26.6%, width by 0.5%, yarn length per 1 m^2 of fabric increased by 1.4%, linear density by 19.6%, surface density increased by 19.8%, volume density decreased by 10.0%.

The analysis of the test results shows that the mass of non-woven fabrics of different composition ranges from 4.8 to 7.3 g, thickness from 0.60 to 0.94 mm, width from 202 to 203 mm, length of yarn per 1 m^2 of fabric from 202 mm to 206 mm linear density ranged from 23.6 to 35.6 g / m, surface density ranged from 118.2 to 176.2 g / m^2 and bulk density ranged from 0.18 to 0.20 mg / mm^3.

IV. EXPERIMENTAL RESULTS

By the results of the study were identified that the mass of non-wovens with different compositions increased by 20.6%, the thickness decreased by 13.1% to 26.6%, the width decreased from 0.5% to 1.5%, the length of yarn per 1 m^2 of fabric increased from 0.5% to 1.9%, linear density decreased to 21.1%, surface density decreased to 19.5% to 19.5%, volume density decreased from 5.0% to 10.0%.

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