FUR KNITWEAR KNITTED FROM SPUN COTTON NITRO YARN ANALYSIS OF PHYSICAL MECHANICAL INDICATORS OF TISSUES

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Annotation

In this work, research was conducted in order to determine the high-quality options based on the analysis of rubber and interlock fabrics woven in different options of cotton and spun cotton-nitron yarns.

Keywords: raw material, mixed, knitting, surface density, volume density, air permeability, interlock, deformation, bamboo, viscose, cotton.

Аннотация: С целью эффективного использования местного сырья из хлопковой и хлопко-нитронный пряжи было проведено исследование технологических параметров и физико механических свойств трикотажа.

Ключевые слова: хлопок,нитрон, трикотаж, поверхностная плотность, обьемная плотность, воздухапроницаемость, деформация.

About 20,000 tons of nitron fiber are produced in the Republic of Uzbekistan per year. In our country, nitron polyacrylonitrile fiber, obtained from acrylonitrile copolymer, methyl acrylate and itaconic acid, has the potential to expand its scope of application. Due to the increase in high demand for it, the question of increasing its production is being considered, for this it is necessary to increase its hygienic properties, which will allow to use it in the production of children's clothes, special clothes, and to expand the range of knitwear made from a mixture of this fiber with cotton. [1-3].

It is known that knitted products made of pure cotton fiber have high hygienic properties, but they quickly wrinkle, change their shape after the first wash, and this negatively affects its appearance. One of the ways to solve this task is to modify the newly formed fiber with a solution of natural silk production waste. The obtained finished modified fiber will have the hygienic and textile-technological properties of natural fiber. Polyacrylonitrile has high physical and mechanical properties, light resistance, heat resistance and resistance to the movement of microorganisms while maintaining fiber properties. In order to study the characteristics of pile knitting, nitron yarn with a linear density of 30 tex, spun cotton yarn with a linear density of 20 tex and spun cotton-nitron yarn with a linear density of 30 tex were selected. Physico-mechanical properties of woolen knitted fabrics in order to study the effect of raw materials, samples were taken in 4 different options.

The samples obtained differ from each other in the types of raw materials used in production. Table 1.

Options / Pointers		I	II	III	IV
Linear density (tex) and amount in fabric (%)	Basic yarn	Nitron 30 tex x 2 38%	Cotton 20 tex x 2 23%	cotton 20 tex x 2 24%	Cotton-nitron 30 tex x 2 34%
	Shaggy yarn	Cotton 20 tex x 2 62%	Nitron 30 tex x 2 77%	Cotton-nitron 30 текс x2 76%	Cotton 20 tex x 2 66%
Surface density, g/m^2		487,7	516,25	500,6	489,7

Thickness, mm		1,52	1,53	1,56	1,61
Bulk density, mg/sm^3		320,8	337,4	320,9	304,2
Air permeability, sm^3/sm^{2}sek		58,3	65,3	72,6	58,3
Abrasion resistsnce, thousand rounds.		46,3	53,8	43,6	51,4
Breaking strength, H	Height	262,5	245,6	203,2	265,8
	Wide	190,3	146,1	137,5	214,2
Elongation at break, %	Height	58,7	81,7	64,2	78,8
	Wide	190,3	154,4	122,2	108,0
Irreversible deformation, %	Height	13,9	18,2	16,8	10,7
	Wide	17,2	26,4	21,8	15,1
Return	Height	86,1	81,8	83,2	89,3
	Wide	82,8	73,6	78,2	84,9
Entery, %	Height	8,9	8,5	8,3	7,4
	Wide	6,5	7,5	6,2	5,1

Option 1 used spun cotton yarn with a linear density of 20 tex*2 as the pile yarn, and spun nitrone yarn with a linear density of 30 tex*2 as the base yarn.

Option 2 used spun nitrone yarn with a linear density of 30 tex*2 as the pile yarn, and spun cotton yarn with a linear density of 20 tex*2 as the base yarn.

Option 3: In the production of fur knitwear, spun cotton-nitron yarn with a linear density of 30 tex*2 was used as the pile yarn, and spun cotton yarn with a linear density of 20 tex*2 was used as the base yarn.

Option 4: spun cotton yarn with a linear density of 20 tex*2 as the wool yarn in the production of fur knitwear, base yarn

and spun cotton-nitron yarn with a linear density of 30 tex*2 was useful as a yarn. The physical and mechanical parameters of the samples are presented in Table 1.

In the results of the table, we can see that the spun cotton-nitron yarn sample is close to the same level as the spun nitrone yarn sample in terms of its tensile properties. It can be seen that the increase in the percentage of deformation recovery had a very positive effect on the shape retention of the cotton-nitron sample. [4-6].

The sample obtained from the spun cotton-nitron yarn differs significantly from the sample obtained from the spun cotton yarn by its high shape retention properties. This was especially

evident when using cotton-nitron yarn as the base yarn and cotton yarn as the pile yarn (option 4) in the development of wool knitwear.

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