INTERNATIONAL MULTIDISCIPLINARY JOURNAL FOR RESEARCH & DEVELOPMENT
SJIF 2019: 5.222 2020: 5.552 2021: 5.637 2022:5.479 2023:6.563 2024: 7,805
eISSN :2394-6334 https://www.ijmrd.in/index.php/imjrd Volume 11, issue 05 (2024)

RESEARCH OF CHANGES IN PHYSICAL AND MECHANICAL PROPERTIES OF TARPAPE UNDER THE INFLUENCE OF DIFFERENT CLIMATIC CONDITIONS

D.S. Kobilova

Tashkent Textile and Light Industry Institute

Annotation: This article presents the results of a study of the influence of various climatic conditions on the physical and mechanical properties of the tarpaulin.

Keywords: Coefficient of variation, waterproof,tarpauling .

Аннотация: В данной статье представлены результаты исследования влияния различных климатических условий на физико-механические свойства брезентов.

Ключевые слова: Коэффициент вариации, водоупорность ,брезент,

Аннотация: Ушбу мақолада турли иқлим шароитларининг брезент матолар физик-механик хусусиятларига таъсирини ўрганиш натижалари келтирилган

Калит сўзлар: Вариация коэффициенти, сув утказмаслик, брезент,

Tarpaulin (from Dutch presenning - shell) linen, semi-linen with jute or cotton fabric made from thick yarn, impregnated with fire-resistant or water-repellent and anti-rot compounds.

The main task of tarpaulin fabric is to serve as reliable protection for the surface from various damages and environmental influences. Depending on the intended purpose, this material is used for sewing shelter tents, canopies, backpacks, awnings, workwear and shoes, which are subject to increased requirements for strength and protective characteristics. In Uzbekistan, when storing raw cotton at procurement points, tarpaulins with different finishes are used to ensure the preservation of its quality. Tarpaulin fabrics take the full impact of various climatic influences - rain, sunlight, wind, which lead to changes in the physical and mechanical properties of the tarpaulin during operation.

The objects of research were the physical and mechanical properties of 3 samples of cotton tarpaulin fabrics of various structures with water-repellent impregnation, subjected to various climatic influences.

The results of determining the main qualitative characteristics of the selected samples are presented in Table 1.

Table 1

№ p/p	The name of indicators	Samples		
		Samples 1	Samples 2	Samples 3
1	Density - number of threads per 10cm: The basis ducks	 250 90	 210 90	 250 90

2	Linear density, tex The basis ducks	58x2 50x2	53x3 50x2	56x2 50x2
3	Superficial density, g/m 2	417,2	419,1	412
4	Breaking load, n The basis ducks,	482 312	570 224	436 200
5	Air permeability, cm3/cm2s	1,7	2,1	7,6
6	Water resistance, mm water column.	360	340	310
7	Type of finish	Smooth-painted with VUP	Smooth-painted with VUP	Not painted with GFP

Selected samples of tarpaulins were exposed to solar radiation and rain for 1 day, 2 days and 3 days.

The results of determining strength after exposure to light and rain are presented in Table 2.

Table 2

№ p/p	Samples	Impact Study Light weather conditions for strength				Impact Study Rain for strength			
		original	1 day	2 day	3 day	original	1 day	2 day	3 day
	Sample No. 1 The basis ducks	481 310	431 303	411 299	369 281	482 310	459 301	450 300	401 289
	Sample								

	No. 2 The basis ducks	569 220	490 214	461 209	423 162	572 220	472 190	462 186	451 181
	Sample No. 3 The basis ducks	435 195	383 191	381 181	373 171	432 197	391 179	362 173	349 169

Analysis of the results showed that the strength of all tarpaulin samples, both warp and weft, decreased compared to the original ones as the frequency of exposure increased.

The strength of the base decreased most from exposure to the sun in sample No. 2 by 25.7%; by 23.2% for sample No. 1 and by 14.2% for sample No. 3. For the weft, sample No. 2 also had the greatest drop in strength and amounted to 26.3%; for sample No. 1, the strength decreased by 9.3% and for sample. No. 3; by 12.3%.

After exposure to rain for 1, 2 and 3 days, the strength of all samples decreased in the range from 6.7% to 21.1%, and the strength decreased with increasing frequency of exposure to rain.

The results of determining water resistance after exposure to light and rain are presented in Table 3.

Table 3

№ p\p	Samples	Impact Study Light weather conditions for water resistance				Impact Study Rain for water resistance			
		original	1 day	2 day	3 day	original	1 day	2 day	3 day
1	Sample №1	360	350	350	310	360	370	330	310
2	Sample №2	340	330	320	300	340	340	280	275
3	Sample №3	310	300	290	260	310	310	300	285

Analysis of the results showed that water resistance decreased for all samples under the influence of the sun and the drop increased as the frequency of exposure increased. The water resistance of sample No. 3 decreased more than others by 16.1%; for sample No. 1 by 13.9% and by 11.8% for sample. No. 2.

When exposed to rain, the water resistance after 1 day did not change for sample. No. 2 and No. 3, and No. 1 increased by 2.8%. After 2 and 3 days of exposure to rain, the water resistance of all

tarpaulins decreased, most of all for sample. No. 2 by 19.1%, sample No. 1 by 13.9% and sample. No. 3 by 8.1% compared to the original samples.

References:

1. Кирюхин С.М., Шустов Ю.С. Текстильное материаловедение. Москва «Колосс», 2011.

2. Шустов Ю.С. и др. 1. Текстильное материаловедение лабораторный практикум. Учебное пособие., Москва, ИНФРА-М, 2016.

3. Соловьев А.Н., Кирюхин С.М. Оценка качества и стандартизация текстильных материалов. М.: Легкая индустрия, 1984, 238 с.

4. Бузов Б.А. и др. Лабораторный практикум по материаловедению швейного производства. М.:Легпромбытиздат, 1991/

5. https://liantrade.ru › blog › vidy-brezenta-kharakteristik.