INTERNATIONAL JOURNAL ON ORANGE TECHNOLOGY

https://journals.researchparks.org/index.php/IJOT e-ISSN: 2615-8140 | p-ISSN: 2615-7071
Volume: 4 Issue: 7 |Jul 2022

Evaluation of Quality Parameters of Refractory Fabric with Natural Fiber

Sirojiddinova Yaxshigul Ismatillaevna
Doctoral student, Tashkent Institute of Textile and Light Industry

Xamraeva Sanovar Atoevna
Prof, Tashkent Institute of Textile and Light Industry

Ahmadjonova Nozanin
Tashkent Institute of Textile and Light Industry

Khidoyatov Omanullo Shukrullayevich
NII PBiCHS MCHS Ruz

----------***----------

Annotation: The article deals with the effectiveness of firefighters and to ensure their health and safety, a method of assessing the quality of flammable fabrics derived from a mixture of natural fibers, i.e. chrysotile and cotton fibers, is presented.

Keywords: chrysotile and cotton fiber, yarn and back yarn, laboratory test equipment.

Introduction: Refractory fabrics have unique properties, but are also valued for their ability to protect human health and safety from fibrous materials and fire protection. Flammable fabrics for firefighters' uniforms are imported from Russia and China. The surface of such fabrics is produced by flammable chemical treatment and does not meet the requirements of hygienic, physical and mechanical properties. The use of special clothing made of these fabrics has been shown to adversely affect the rapid movement of firefighters. Although the imported fabrics did not have specific properties, it was found that the firefighters' special clothing had low air permeability and did not have the comfort required by the ambulance service. As a result, there are cases of neurological and skin diseases in firefighters.

Figure 1. Appearance of chrysotile fiber in its original mineral state in nature

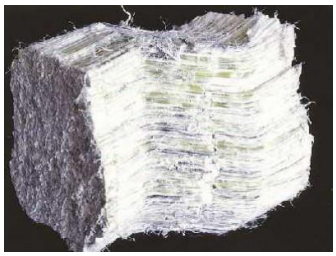

Figure 2- Fiber appearance of chrysotile fiber

INTERNATIONAL JOURNAL ON ORANGE TECHNOLOGY

https://journals.researchparks.org/index.php/IJOT e-ISSN: 2615-8140 | p-ISSN: 2615-7071
Volume: 4 Issue: 7 |Jul 2022

One of the most important issues is to determine their quality, taking into account their characteristics. In this regard, special attention is paid to the fiber content of yarns to improve the physical and mechanical properties of special garments. In this regard, China, South Korea, Germany, Switzerland, India, Turkey, Russia, Kazakhstan, Uzbekistan and other developed countries pay special attention to improving the physical and mechanical properties and quality of textile products of various compositions. The world has made great strides in the production, development, improvement and refinement of flammable textiles in a variety of ways. When studying the state of production and the results of research in this area, the standard adopted fire-technical classifications of flammable textile fabrics used for special clothing, fire protection coatings, fire barrier curtains problems that need to be improved, such as not fully meeting the requirements.

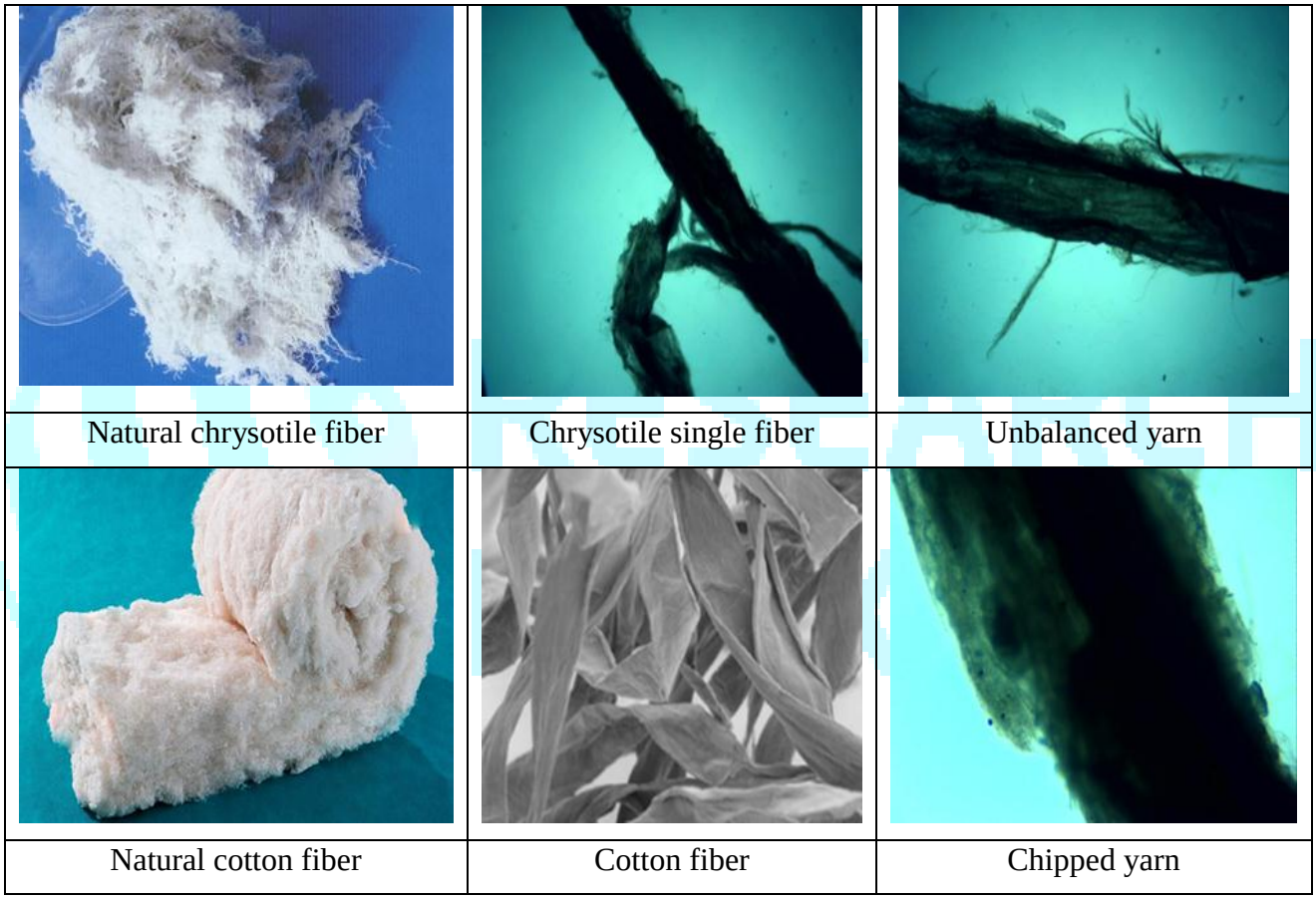

Figure 3. Chrysotile and cotton fibers

Therefore, one of the important tasks is to create a new flammable material that meets the requirements by studying the flammability, flammability, surface flame spread, adhesion and physical and mechanical properties of textile materials treated with antiprene remains.

INTERNATIONAL JOURNAL ON ORANGE TECHNOLOGY

https://journals.researchparks.org/index.php/IJOT e-ISSN: 2615-8140 | p-ISSN: 2615-7071
Volume: 4 Issue: 7 |Jul 2022

Tt/r №	Name of indicators	Unit of measure	T=124tex	O'zDst 2321:2011 requirements
1	Linear density	tex	124	140 and above
2	Linear density deviation	%	0,2	+2,0 -2,5
3	Breaking force	cN	2339,63	-
4	Elongation at break	%	13,09	-
5	Coefficient of variation in breaking strength	-	3,37	13,8
6	Relative tensile strength	cN/tex	7875,97	1412,5 and above
7	Rise	Bur/m	264,00	-
8	Eshilish bo'yicha variatsiya coefficients	-	7,0	-
9	Coefficient of growth	-	27,4	57
10	Quality indicator	-	3,14	0,8
11	Humidity	percentage	7,6	8,0

It is known that flammable fabrics have their own characteristics, as well as fibrous materials and fire protection are valued for their ability to protect human health and safety. While the flammable textile yarns and fabrics produced have clear properties, the special clothing of firefighters is comfortable in accordance with the air permeability and the rapid movement of firefighters. is required. According to the results of the study of the requirements for special clothing of firefighters, in order to improve the above-mentioned properties, the production of flammable yarns and fabrics is carried out not only by impregnation of chemical protective coatings on the surface of the fabric, but also chrysotile Achieving through mixing is convenient in all respects.

The efficient operation of firefighters involves the production of a flammable fabric made from a mixture of natural chrysotile and lime fibers to ensure their health and safety.

Analysis of test results carried out in the test laboratory of the Research Institute



INTERNATIONAL JOURNAL ON ORANGE TECHNOLOGY

https://journals.researchparks.org/index.php/IJOT e-ISSN: 2615-8140 | p-ISSN: 2615-7071

Volume: 4 Issue: 7 |Jul 2022

Number of experiments	Burning time, s		The length of the deleted field, mm				Independent combustion time, s	The end result
	By warp	By woof	By warp		By woof			
1	5	5	5	0	5	0	5-7-15	burns
2	7	7	0	0	0	0	5-7-15	burns
3	15	15	5	0	5	0	5-7-15	burns

Subtraction of the values of the incoming and outgoing factors, which differ sharply in the results of the experiment, is carried out in the following order

average value {V¯} and variance S2 {y}.

$$\bar{V} = \frac{1}{m}\sum_{i=1}^{m} \bar{V}_i \quad (1.) \qquad S^2_{\{V\}} = \frac{1}{m-1}\sum_{i=1}^{m}(V_i - \bar{V})^2 \quad (2)$$

In this case, the m-experimental repetition, the experimentally determined value of the Vi-input factor, V-Average. Then the experimental value, which differs sharply from the maximum value Vi max on the calculated value of the Smirnova-Grabs criterion, is determined by the following formula.

$$Vr\ max = (Vr\ max \frac{\bar{V}}{S_{\{V\}}}\sqrt{\frac{m}{m-1}} \quad (3)$$

The results obtained in the experiment revealed a minimum value Vr min, which differed sharply.

$$Vr\ min = \frac{(\bar{V} - Vi\ min)}{S_{\{V\}}}\sqrt{\frac{m}{m-1}} \quad ..... \quad (4)$$

The determined values of Vr max and Vr min were then compared with the critical value of the criterion. To determine the type of regression equation, a graph V = f (x) was constructed. (V-output parameter) x-influencing factors.

The method of small squares is used to determine the coefficients of the regression equation. The coefficients of linear equations (y = a_0 + a_1 x) and the coefficients of nonlinear equations (y = a_0 + a_1 x + a_ (2) x2) were determined [2].

Coefficient values of equations.

Equation level	coefficients		
	A0	A1	A2
Linear	$X1^{\sum Vi}$	$\alpha_2 \sum uVi$	-
Not linear	$\alpha_3 \sum Vi - \alpha_4 u \sum_i^2 Vi$	$\alpha_2 \sum uVi$	$\alpha_5 \sum_i^2 Vi - \alpha_4 u \sum_i^2 Vi$

In this case, a_1, a_2, a_3, a_ (4 and a_5) - coefficients depending on the number of points to be tested are taken from a special table, a new factor that replaces i-x

INTERNATIONAL JOURNAL ON ORANGE TECHNOLOGY

https://journals.researchparks.org/index.php/IJOT e-ISSN: 2615-8140 | p-ISSN: 2615-7071
Volume: 4 Issue: 7 |Jul 2022

If the number of checks is odd (n = 2R + 1),

$$u=\frac{x-K_{R+1}}{h} \quad (5)$$

If the number of checks is even (n = 2R),

$$u=\frac{2(x-x_r)}{h} \quad (6)$$

Here is the h-factor step,

$$F_r=\frac{S^2\,(2)\,\{V\}}{S^2\,(1)\,\{V\}} \quad (7)$$

Then S ^ 2 (1) {V} is the average variance.

〖 S〗 ^ 2 (2) {V} - variances characterizing the degree of absorption of experimental averages. Comparing the calculated value of Fr with the value of FT in the table, the hypothesis of the adequacy of the obtained model was determined as correct or incorrect.

Conclusion: The recommended flammable fabric has its own characteristics, as well as fibrous materials and fire protection to protect human health and safety. While the flammable textile yarns and fabrics produced have clear properties, the special clothing of firefighters is comfortable in accordance with the air permeability and the rapid movement of firefighters. provides Cotton and chrysotile fiber flammable fabric is recommended as a flammable fabric for firefighters' special clothing.

List of used literature

1. S.A.Xamraeva, Y.I.Sirojiddinova “Evaluation of the fire resisttance properties of yarn and fabric with a structure made of asbestos”At-2”and cotton feber”Scences &Advancements. 2021-y10-may.
2. Y.I. Sirojiddinova, S.A.Xamraeva, K.F.Toshkulov “Application of natural chrysotile fiber in production of refractory fabric in textile industry” ISSN: 2350-0328 International Journal of Advanced Research in Science, Engineering and Technology Vol. 9, Issue 2 , February 2022 Copyright to IJARSET www.ijarset.com 19031.
3. Y.I Sirojiddinova Doctoral candidate at the Tashkent Institute of Textile and Light Industry Sanovar Atoevna Hamrayeva Professor of the Tashkent Institute of Textile and Light Industry Kamola Faxriddinovna “ASSESSMENT OF THE QUALITY OF NATURAL FIBRE FIRE SEEDS” "Ekonomika i sotsium" №2(93) 2022 www.iupr.ru
4. “O‘zstandart” agentligi tomonidan 14 iyyul 2017 yil №05-81 sonli buyrug‘i asosida O‘zDst 3191-2017 “ O‘t o‘chiruvchi xodimlar kiyimiga qo‘ylgan texnikaviy shartlar”i.