RESEARCH OF QUALITY INDICATORS OF FUR PLATES FROM RAG

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Abstract: Much attention is paid to the issues of waste-free use of the area of skins of fur semi-finished products of various types. The share of costs for fur and leather semi-finished products in the cost of fur and leather products reaches 80–90%. Therefore, their economical use plays a very significant role in reducing the cost of products. Increasing the utilization rate of fur semi-finished products and natural leather materials due to the maximum use of the flap and low-grade raw materials plays an important role.

Key words: fur clothing, fur semi-finished product, fur trimming, silhouette.

INTRODUCTION

The efforts of manufacturers of fur and leather products are aimed at reducing material losses and rational use of waste. To do this, they plan to manufacture small leather goods, use patchwork technology, combined cutting according to rational layouts of patterns, use various types of equipment that provide low-waste cutting technology. However, it is not possible to achieve full utilization of waste. A significant part of them has not yet found application and are taken to dumps, which, in addition to material losses, leads to environmental pollution.

It should be emphasized that the term "waste" applied to parts of skins and flaps, especially such valuable semi-finished products as mink, sable, arctic fox, fox, astrakhan fur and other species, is not adequate to the value that they acquire after the manufacture of various fur products. The most valuable waste products are: tails from the skins of a silver-black fox, sibodushka (Colored fox), platinum and snow fox, blue and white fox, sable, marten, mink, Siberian weasel and lynx skins; paws from fox and arctic fox skins of all varieties, paws and neck parts of astrakhan, broadtail and birch fur, paws from mink, sable, lynx skins; a furrier's flap of valuable types of furs, astrakhan fur, astrakhan fur and broadtail.

The main reason for the incomplete use of waste generated in the process of cutting fur semi-finished products and natural leather materials is that they have a complex irregular shape and are characterized by a wide variety in size and configuration. This is due to the influence of the type of semi-finished product, the configuration and size of the skins, their quality, cutting methods and other factors. Another feature that complicates the process of processing waste of fur semi-finished products (FSP) and natural leather materials is their belonging to different topographic areas of skins. Depending on this, the waste has different indicators in terms of the

degree of density and height of the hair, the direction of the hair and the thickness of the flesh, which greatly complicates their use for the manufacture of high-quality products. As a result, more than 50% of natural fur waste at fur factories remains unused and is an important resource conservation reserve [1-3].

The use of an expensive semi-finished product, and manufacturing methods, a large variability of physical and mechanical properties, determined by the natural and biological characteristics of animals, require comprehensive research to improve the design methods of fur products from a flap.

With the artistic design of fur products from waste, complete consistency must also be achieved between its physical, mechanical and aesthetic properties, the terms of obsolescence, which means that the synchronization of its aging in all parameters must be ensured.

For the rational use of furrier waste, designers have successfully used such innovative methods of flat decoration of skins, such as inlay, perforation, appliqué, blotches, fringe trim, decoration with ornaments, and embroidery on the leather fabric of the skin [2]. Such methods of innovative design make it possible to transform the surface of the fur, improve its aesthetic, operational quality indicators, increase the usable area of expensive fur raw materials and create a fur product that meets the requirements of modern design, contribute to the targeted use of a fur flap or low-grade semi-finished product, attracting buyers to the least valuable types of fur. When using such methods, many firms make changes in the technological schemes of raw materials processing, taking into account the latest recent advances.

The successful (effective) application of innovative methods for the design of fur products from furrier production waste should be achieved with full consistency between its physical, mechanical and aesthetic properties, the terms of obsolescence, visual lightness without compromising the functionality, efficiency and expediency of their production, which means there should be its aging is synchronous in all parameters. This implies a decrease in the weight of the product, a 2-fold reduction in the amount of semi-finished fur, a simplification of manufacturing methods with a parallel reduction in the cost of products, unification of design methods and an increase in the aesthetic value of finished products.

EXPERIMENTAL PART

Waste classification. In this work, the manufacture of fur plates from the flap was carried out according to the traditional method: sorting, cutting off and fitting the flap in size, stitching the strips into plates of specified sizes and shapes (rectangular, square, trapezoidal, etc.), moistening and straightening, leveling each row and eliminating wrinkles, drying and traditional finishing operations [5].

The analysis of the waste of a fur semi-finished product (FSP) was made on the basis of a study of the literature and experimental sorting of a karakul fur flap in the

conditions of OOO “Original Textile and Print” in Tashkent. The object of research is the FSP waste remaining after cutting fur skins in the production conditions of domestic enterprises, put up for sale in the trade network of Tashkent. This is a waste of mink fur, astrakhan fur, rabbit, nutri. The waste was very diverse in size and shape, type of fur, color, quality of manufacture, density and other indicators.

In accordance with the technology for the production of fur products [6] the flap was pre-sorted into furrier, foot and inter-patch. Within each group, the flap was subdivided according to the type of fur, color and height of the hairline, according to its shape and configuration (lobe, transverse, rectangular, conical, triangular, etc.).

The study of FSP waste showed that they are subdivided according to the types and sizes of fur as follows (Fig. 1):

- tails from mink skins: long - more than 15 cm, medium - from 10 to 15 cm, short - from 7 to 10 cm;

-tails, the length of which is less than 7cm and the width is less than 1cm, are referred to as a foot flap. This also includes tails with defects in the hairline and skin tissue on an area of more than 50%;

Manufacturing of plates. Currently, there are various methods of making fur skins and plates [2,8]. The selection of the flap into the plates was made from homogeneous groups of fur, taking into account the requirements for fur clothing [2,9,7].

The traditional way of using FSP waste for clothing is the manufacture of fur plates collected from the largest fragments of fur skins (mainly peripheral areas and inter-pattern outlets), the shape and size of which depend on the waste used. A flap of most of the semi-finished fur product is cut into pieces that have the shape of a square, rectangle, triangle, cone, as well as into side and transverse strips. In this case, the waste should be of high quality, with a uniform hairline, the direction of which must be taken into account when forming a fur plate.

The flap of the astrakhan-merlushk group was sorted by the type of curl. Such a flap is cut into pieces of any shape. At the same time, bald patches, defects of the hairline and skin tissue were removed. The skin of these broadtail skins is quite thin. Therefore, in products made of broadtail, it is very important that the seam is strong, does not damage the thin leather fabric, looks neat and is not noticeable from the face.

Innovative methods for the design of semi-finished fur products from waste require aesthetic harmony of color solutions, the texture of the fur and its lightness of the plates on the product, therefore, when selecting a flap, it is necessary to take into account the type of fur, features of the hair and leather fabric, linear dimensions.

Karakul has more opportunities in the selection of skins by color and texture, since the process of stitching parts of skins does not affect the appearance of the product - thanks to the curl of hair on the front side of the product, the seams are completely

invisible.

When making the plates, the flap was cut off by obligatory alignment in width using the jointing method. The direction of the hairline is lobar from top to bottom. The flap was placed in rows in the plates, and between the pieces, joining made of soft leather or suede was inserted. The width of the jointing may vary. The largest pieces are located in the lower rows with a gradual transition to thinner ones in the upper ones. To assess the quality of harvested fur plates from waste fur skins, experimental studies were carried out on various semi-finished products of FSP. The following properties of the leather tissue of the plates were experimentally determined: density, thickness, heat retention, strength properties, elastic-plastic properties and vapor permeability [5-6].

Strips of the largest possible size were cut from the furrier's flap and parts of the skins. Then the strips were connected with pieces of a skin flap 2.0 cm wide. Cutting, stitching of parts of skins, production of seams and plates from natural fur waste was performed using a furrier machine, a furrier's jamb knife, a metal comb «comb», a cutting board, scissors, tailor's chalk, a measuring ruler, patterns, cargo, and other tailors tools by hand.

Methods for determining vapor permeability. Vapor permeability is the ability of a leather fabric to transmit water vapor from an environment with a higher air humidity to an environment with a lower humidity. Vapor permeability, like air permeability, is one of the characteristics of the hygienic properties of leather fabric.

through a unit area of the sample (1 cm²) per unit of time (1 h), was calculated by the formula (9) [19]:

$$\Pi = \frac{\boldsymbol{m}}{\boldsymbol{t} * \boldsymbol{\pi r^2}}$$

Where *m* - decreased the mass of the glass with the contents for 6 hours, mg;

t is the duration of the experiment, h:

π is the area of the working part of the sample, see

Table 1

Tensile test results of fur plates

№	Type of fur	Breaking load, H		Elongation at break, %	
		Along	Across	Along	Across
1	Astrakhan	82	66	22	20
2	Karakul+ lining	187	22,9	72	20,2
3	Broadtail	88	79	29	26
4	Broadtail + lining	59	65	26	27,5
5	Nutria	143	126	51,1	45
6	Nutria + lining	87	235	7,1	6,6

7	Mink	177	174	50,9	50
8	Mink + lining	167	136	6,8	40

III. RESULTS AND DISCUSSION

The data presented indicate a decrease in the strength of the plates from skins with thick leather fabric (samples from mink and muskrat) to skins with thin leather fabric (astrakhan and broadtail). The low strength of leather fabric and skins determines the low strength of the furrier's seam, which requires the mandatory use of reinforcing materials in the process of making them. To increase the strength of the plates, the flap must be selected not only uniform in the height of the hairline, but also in the thickness of the skin tissue.

Elongation of the leather fabric at break determines the plasticity of the fur skin, in the absence of which deformation and shrinkage of products occurs, and with excessive plasticity, fur products lose their shape due to residual deformation of areas subjected to intense stretching [8].

A comparative analysis of the results of measuring the elongation indices of experimental samples of plates made of fur flap of various types of fur shows a significant decrease in the plasticity of the skins after their replanting on the lining (samples of mink and muskrat) both along and across the samples of the plates. It is recommended to use skins with a greater plasticity and thickness of leather fabric in the manufacture of products of a certain shape, in which molding of parts is required, such as a collar, sleeves and details of a fur hat. For them, it is advisable to use plates without lining or to strengthen their structure after stretching the skin.

The heat-retaining ability of the plates, in fact, is the property of the material to maintain comfortable thermophysical conditions for wearing outerwear. This indicator characterizes the ability of the plates to maintain a temperature of -36.6 ° C in the working area of the device. As can be seen from table 4, the heat-holding capacity of karakul and nutria are maximum and at the same time there is a directly proportional dependence of this value on the density and thickness of the plates. It can also be seen from the table that duplicated plates have a heat retention rate of 1-2.5% more than conventional plates.

The experiments carried out to determine the vapor permeability of the samples showed that all samples have a certain level of vapor permeability and this is important for clothing materials. Samples of the astrakhan group have this indicator by 15.0% less than a semi-finished product from fur. It should be noted that the duplication of the plates with a lining material has a different effect on the vapor permeability of the plates.

IV. CONCLUSIONS

Failure to comply with the parameters of the thread connection, improper selection of needles and threads lead to needle breakage, thread breakage, the formation

of cuts, skipping in the seams, tightness of the stitch, uneven stitches along the length of the line, as well as the appearance of defects that appear during wear and are hidden - rupture of the leather fabrics along the seams and a violation of the integrity of the stitching along the seams.

REFERENCES

1. Goncharova O.V. Merchandising and examination of fur products: a tutorial / O.V. Goncharova, S.V. Goncharova. - Omsk: Omskblankizdat, 2012.- 572p.

3. Z.E. Nagornaya, G.M. Androsov, E.A. Ryapukhina. Improvement of the process of preparing a sheepskin-fur coat semi-finished product for cutting // J. Sewing Industry. 2014 No. 3.p.41-42.

5. Terskaya L.A. Technology of cutting and sewing fur clothes: textbook. in a sobie for stud. higher. study. institutions / L.A. Terskaya. - M .: Publishing Center "Academy", 2005. - 272 p.

6. Terskaya L.A. Theoretical foundations of designing fur products: Monograph. - Vladivostok: Publishing house of VSUES, 2001.-244s.

7.GOST 9758-86 (Method for determination of thermophysical properties on an AW-2 device according to ASTM standards)

8. GOST 938.17-70. Method for determining the vapor permeability of the skin);

16. Golovteeva A.A., Kutsidi D.A., Sankin L.B. Laboratory workshop on the course of chemistry and technology of fur leather.-M .: Legprombytizdat, 1982, -312s.

19. To A Question of Rational Usage of Wastes from Fur — Half-Finished Products. Vahabova N., Nigmatova F., Shomansurova M. Ergasheva N. International Journal of Advanced Research in Science, Engineering and Technology Vol. 6, Issue 1, January 2019 Copyright to IJARSET. www.ijarset.com 7947 N.

20. Innovative Design Methods in Fur Production. N.D Ergasheva, F.U. Nigmatova, Sh. Madzhidova G. Eshonkhonova, L. Kuldasheva. International Journal of Advanced Research in Science, Engineering and Technology Vol. 7, Issue 3, March 2020 Copyright to IJARSET