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DEVELOPMENT OF METHOD OF FINISHING OF WOVEN GARMENTS VIA DRAWING ON LIQUID SURFACE

РАЗРАБОТКА СПОСОБА ОТДЕЛКИ ТКАНИ ОДЕЖДЫ РИСОВАНИЕМ НА ПОВЕРХНОСТИ ЖИДКОСТИ

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Textile finishing via drawings which has implemented on liquid surface is allowed to get unrepeatable pictures that become ornamentations for clothes; obtaining of an image on the surfaces of the liquid is possible in case of availability of

different surface tension of paint and aqueous solution; has been obtained rational concentration aqueous solutions from the local raw materials; has shown an examples of a female dresses, chiselled drawings which is performed on an aqueous solution.

Отделка тканей рисунками, выполненными на поверхности жидкости, позволяет получить неповторимые изображения, которые становятся украшением одежды. Получение рисунка на поверхности жидкости возможно при различных поверхностных натяжениях краски и водного раствора. Найдены рациональные концентрации водных растворов из местного сырья; показаны образцы женского платья, отделанные рисунками, выполненными на водном растворе.

Decoration which is performed directly in manufacturing of sewing products has a great influence for quality of clothes andit's competitiveness. It is known that availability of decoration in clothes' composition can play different roles: to express the main idea of a composition or to identify the product's shape, to underline the constructive lines, to complement and decorate the model. Proper use of the good decorations not only clarifies the purpose of clothing, but also provides its individuality, and as well as in some cases allows you to underline merit and hide figure flaws. When new thing is acquired, the first thing is to pay attention to the colour of the drawing. Currently, you can see all kinds of fabric patterns and colors. The technological progress does not stop and therefore the creation of new methods of placing images on the fabric is an important task.

Drawing can be done on anything. There are, surprisingly, drawing techniques on the liquid surface [1...3]. Some of them are quite ancient. The essence of technology of drawing consists in: begin the image creation with paint on the surface of the aqueous solution and then it is applied to the surface of the cloth. This way of unrepeatable drawing becomes a decoration of the clothes. To draw with one liquid on the surface of another one, they need to have a different surface tension, which will stop its mixing. Thereby, solution

for the drawing, which is a natural water cloth, should be preprepared. In this purpose the natural thickeners usually to be added: geven's plant extract, seaweed, etc. [2]. However, for the preparation of a homogeneous solution for drawing in local conditions to find these extracts is not possible and in this regard it is considered using available thickeners and respective questions of processes of physics analysis of the interaction of liquid paints and solution.

Paints are very liquid, and their consistency is always adjusted by the adding of water, but, nevertheless, they have a different surface tension with the aqueous canvas, and therefore always remains on its surface. The major difference from any other paints is that they do not dissolve in water (saline), hold their shape well, they are not mixed with each other but are easily come under artist 's influence for creating and saving certain forms. The difference between the air on one side and bodies of liquid on other side is fact that the first occupies the entire volume provided while fluid occupies only a certain volume and forms a free surface, this liquid separating medium from the border environment. Surface tension forces act in the surface layer of liquid, under the action of which the free surface tends to become spherical. Normally, this prevented by the force of gravity. Due to the
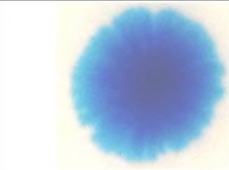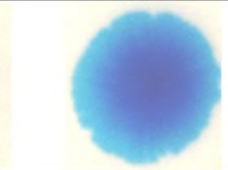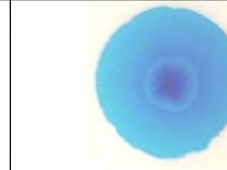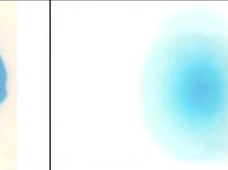
force of gravity a liquid takes the form of container and its free surface becomes horizontal.

Let's look at a drop of liquid I, located on the surface of another which is immiscible with it liquid II . Form of a drop established under influence of interaction between the three environments: liquid I, liquid II and air III. These three environments have mutual border-circumference limiting drop and crossing flat of drawing surface in points A and B. Three surfaces crosson that circumference: surface, separating liquid II and air with coefficient of surface tension α_{23}; surface, delimiting liquid I and II with coefficient of surface tension α_{12} and surface, delimiting liquid I and air with coefficient α_{13}.

Per unit length of the border of the circle are the surface tension force F_{23}, F_{12}, F_{13}, numerically equal to the corresponding values α_{23}, α_{12}, α_{13}. Those forces are directed perpendicular to the circumference of the individual elements and tangent to respective

surfaces of the partition. In case of opportunity when we can neglect the force of gravity compared to the forces of surface tension, an equilibrium will be the form of drops, in which the $F_{23} + F_{12} + F_{13} = 0$ or $F_{23} = F_{12}\cos\varphi_{12} + F_{13}\cos\varphi_{13}$. It follows that in case of equilibrium $F_{23}<F_{12} + F_{13}$, ie $\alpha_{23}<\alpha_{12} + \alpha_{13}$ (as $\cos\varphi_{12}+ \cos\varphi_{13}$ less than one). If $F_{23}> F_{12} + F_{13}$ or $\alpha_{23}> \alpha_{12} + \alpha_{13}$, the liquid drops on the surface cannot balance and drop spread on the surface as a thin pellicle. Thus, spreading of the liquid ink on the surface of the aqueous solution can occur, when the paint has a low surface tension than the surface tension of the liquid. Otherwise lens is formed on the surface instead of pellicle. After mutual saturation of fluids may change the picture - the pellicle after some time shrinks to a lens. Table 1 shows samples of the spreading ink drops on the surface of an aqueous solution with a variety of surface tensions.

Sample number	1	2	3	4
Spreading the liquid ink droplets on the surface with different surface tension				
Liquid Concentration%	45	50	60	80

For implementation of the test, paints manufactured in Turkey have been used and solutions with different concentrations, composed of starch, silicate glue and acrylic lacquer. Experimental determination of coefficients of the surface tension of the ink and liquid with different composition were executed (at room temperature) via methods of compensation of difference of pressures of the surface layer of fluid [4] and the separation of ring (du Nui) [5].

For each sample experiments were repeated five times with different capillaries. As a result of studies, the most rational values of surface tension have been identified:

• For starch solution: F_1=50 мН; F_2=51 мН; F_3=51 мН; F_4=52 мН; F_5=50 мН; F_{mid}=50,6 мН.

• For silicate glue solution: F_1=50 мН; F_2=51 мН; F_3=51 мН; F_4=52 мН; F_5=50 мН; F_{mid}=50,6 мН.

• For acrylic lacquer solution:F_1=19 мН; F_2=20 мН; F_3=25 мН; F_4=25 мН; F_5=25 мН; F_{mid}=22,8 мН.

Based on result of the study were used recommended composition of the aqueous solutions and have been made drawings on the cloth (sample 2 from Table 1) and designed a collection of festive dresses. Sample 3 shows an external view of one of the dresses made by needle.

CONCLUSIONS

Rational compositions of water solutions are certain from local raw material for

drawing on the surface of liquid. The experiments showed that is most appropriate use of cloths - quickly infiltrating waterfor drawing on the aqueous solution, such as chiffon, crepe, crepe-chiffon, silk and others. Tailoring should be performed, placing drawings based fashion sample and observing the processing technology.

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