

"INNOVATIVE FABRICS IN THE FASHION INDUSTRY"

Z.F.Valieva

PhD , Associate Professor, Department of Textile materials science

N. D.Turaeva

student of group 8p-21

Z.Z.Tokhirova

student of group 8p-21

Tashkent Institute of Textile and Light Industry,

E-mail: zulfiya-valieva-6@mail.ru

K.D.Valieva

Master's at University of Milan

Аннотация: Статья посвящена рассмотрению применению достижений инновационных технологий при выработке "Умных тканей"

Abstract: The article is devoted to the consideration of the application of the achievements of innovative technologies in the development of "Smart fabrics"

Clothes are what accompanies a person his entire life. This is the substance on which we depend, which brings comfort and convenience. Modern clothing production does not stay away from innovative technologies. The fashion industry comes with the latest materials with fantastic properties. Clothes become "smart" - responds to cold or heat, charges mobile devices, shows our mood to others and transmits emotions to the distance. Designers are already using the capabilities of high-tech fabrics to create amazing clothes of a new generation.

The technology of introduction of microcapsules into tissue has been known since the end of the last century, but it is now that the active creation of materials containing microcapsules of a variety of substances has begun. The American company Outlast Technologies patented the material Outlast, which was originally created for the clothes of the military. The property of the material is heat regulation inside clothing. The fibers of the thermostatic tissue are permeated by built-in paraffin microcapsules. When heated, the paraffin melts, absorbing excess heat.

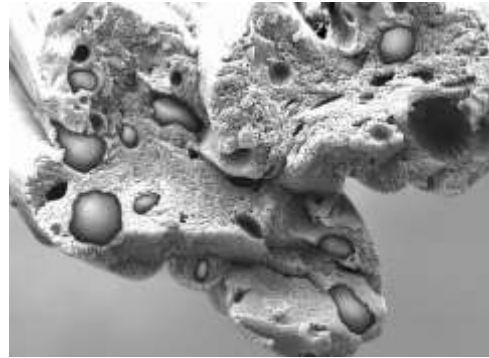


Figure 1 - Polymer under microscope

Upon cooling, the paraffin in the capsules solidifies and gives away the absorbed thermal energy. Thus, clothing itself maintains a thermal balance. The technology of microencapsulation gradually brings new possibilities to the fashion world. Depending on the quality of the contents of the microcapsules, it is possible to obtain tissues that change color by exposure to sunlight (photochromic tissues) or by temperature change (thermochromic material).

As for "useful" technologies, a huge number of different directions can be distinguished among them. First, it is microencapsulation - when microcapsules with useful substances (grass extracts, moisturizing components, etc.) are introduced into tissues, which penetrate the body through the skin when wearing. Second, tissues equipped with microinstructors that read information about pulse, pressure, temperature and monitor the condition of the wearer and the environment. Third, tissues "for lazy" - do not require ironing, protect against ultraviolet rays, viruses, bacteria and harmful impurities, equipped with anti-allergenic or repellent protection.

Advanced Fabric Technologies created a material whose structure is woven with a special fiber called HEI yarn. This material can be given a variety of properties. Initially, HEI yarn was used to produce clothing with an antiballistic effect to protect against shrapnel and explosions. Currently, HEI-based material can have therapeutic properties - stop blood, pain, disinfect the wound, heal abrasions and clean up swelling. The properties of clothing made of such material will be appreciated by athletes and the military. Another property of HEI yarn is electrical conductivity. The material can be used to recharge mobile devices. The production of supernova fabrics allows the creation of futuristic, bright and emotional clothing.





Figure 2 - HEI yarn

The incredible ideas and fantasies of designers are becoming a reality. The use of 3D printing to make models of clothing, shoes and accessories is a qualitative leap in the development of fashion. The material that is used for printing is hardened powdered nylon. The first 3D dress was designed by designers Francis Bitonti and Michael Schmidt. The dress was assembled from 17 separately printed fragments. The famous model Dita von Tiz presented to the public a 3D - an outfit. Experts noted the high density and insufficient flexibility of nylon, and now a lighter and more elastic material - elastomer Elasto Plastic is being developed. However, the creation of 3D models of shoes from nylon continues successfully.

Glowing fabrics are also offered by the French company Lumi Gram. Lumi Gram is a French company that produces an unusual fabric glowing in the dark (a fabric using Luminous fabric technology). During the day it looks almost like normal, but the real star hour comes at night. The smallest luminous strings that are woven into the web begin to shine in one light or another. The fabric is equipped with a small controller. Not only does it allow you to change the mode from "on" to "off," but it also allows you to stage a whole visual show, changing the illumination of the fabric - switching between blue, white, yellow and green colors. LumiGram optical fiber is used, requiring the use of batteries (3-5 volts), which must be removed before washing (manual so as not to damage the fabric).

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