

THE USE VARIOUS TYPES OF TEXTILES IN MODERN INDUSTRY

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Nowadays Ukrainian light industry is developing rapidly and bringing new advances in the field of textiles. Many types of technical textiles and geotextiles have had their practical application in daily life of Ukrainians. But a large number still remains unknown to many people and has not received enough attention and development in the sector of light industry. The article considers various types of existing textiles and proposes new ways of their development and practical use. Let's consider most common types of textiles and their importance for humanity.

Textiles can be divided into different types according to different criteria. One of them is a type of materials. These materials come from four main sources: animal (wool, silk), plant (cotton, flax, jute), mineral (asbestos, glass fibre), and synthetic (nylon, polyester, acrylic). Various companies produce no fabric but may specialize in the production of certain types of fibres, which they sell to fabric or yarn manufacturers in the raw fibre state or already processed into yarn. Yarn producers buy natural or man-made fibres and spin them into yarns of different sizes and characters, which fabric manufacturers then weave or knit to produce a fabric.

Textiles have a number of applications and the most common of them are for making clothes (every day textile companies may orient its products toward manufacturers of women's dresses, women's sportswear; men's wear; outerwear (coats), or neckties; children's wear; active wear; dance wear; hosiery, swimsuits, gloves, handbags, scarves, hats, umbrellas, and uniforms are others) and for different accessories like a bags and baskets. In the household textiles are used for producing carpeting, upholstered furnishings, window shades, towels, coverings for tables, beds, and other flat surfaces, and for making pieces of art. Different types of textiles are still used in almost all areas of human life and are its integral part. Technical textiles are reported to be the fastest growing sector of the textile industry.

Among innovations of this sector, textile engineers are developing high-tech

fibres that are used as substrates in biomedical applications, as well as materials that aid in energy conservation and pollution control [2, p.273]. But despite of it this sector of light industry is not a well defined segment yet in comparison with other countries, although it overlaps with several other areas, including industrial textiles (filtration media), geotextiles (erosion protection and sealing of toxic waste) and agricultural textiles (minimising the loss of water from the land and reducing the need to use herbicides providing mulch to plants).

Apart from these direct applications, technical textiles can contribute towards the environment in almost every sphere of their use, for example by reducing weight in transport and construction and thereby saving materials and energy.

An important and growing part of the textile industry is the medical and related healthcare and hygiene sectors. The extent of the growth is due to constant improvements and innovations in both textile technology and medical procedures.

Materials used include monofilament and multifilament yarns, woven, knitted, and nonwoven fabrics, and composite structures. These materials can be categorised into four separate and specialised areas of application as follows:

- Nonimplantable materials – wound dressings, bandages, plasters, etc.
- Extracorporeal devices – artificial kidney, liver, and lung
- Implantable materials – sutures, vascular grafts, artificial ligaments, artificial joints, etc.
- Healthcare/hygiene products – bedding, clothing, surgical gowns, cloths, wipes, etc [1, p.34].

Although, research utilising new and existing fibres and fabric-forming techniques has led to the advancement of medical and surgical textiles, in my opinion, development nanotechnology in sector of the medical textile industry has the potential to make major contributions to material innovations going forward.

Even excluding the very considerable use of textiles in performance clothing and footwear, there are plenty of opportunities for the use of technical textiles throughout the sports and leisure market. Applications are diverse and range from artificial turf used in sports surfaces through to advanced carbon fibre composites for racquet frames, fishing rods, golf clubs and cycle frames. Other highly visible uses are

balloon fabrics, parachute and paraglider fabrics and sailcloth [1, p.57].

From all written over we can conclude that light industry of Ukraine is at a high level of development. Textile industry in the area of technical textiles, geotextiles, medical textiles and casual textiles has formed the basis for future development and expansion of production of all types of textiles. Considered types of textiles have a very important and practical applications in all areas of human life and need constant improvement and technological development.

References :

1. Marypaul Yates « Textiles: a handbook for Designers» by W. W. Norton & Company, 2000, 192 p.
2. A.R. Horrocks and S.C. Anand «Handbook of Technical Textiles» Woodhead Publishing Ltd and CRC Press LL, 2000, 559 p.