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Importance of the OEKO-TEX 100 Standard for the Textile Industry

Axtam Akramovich,
Associate professor,
Namangan Institute of Engineering and Technology
Jumabayeva Shakhnoza Azimjon's Qizi
Master's student
Namangan Institute of Engineering and Technology

Abstract. In this article, the introduction of the OEKO-TEX 100 standard, which is today's international certificate for the production of textile products to the world market, and its possibilities, the essence of the OEKO-TEX 100 standard, the product produced in an environmentally friendly way and about the role and importance of textile products processed in ecologically clean borders in the world production.

Key words: OEKO-TEX, OEKO-TEX-100, environmental certification, OETI, test-TEX, ecological requirements, naturalness.

Introduction. The manufacturing of products in the textile industry is very complex, involves many mechanical and physics-chemical processes. This is often very demanding, from the point of view of energy, water, and chemicals to both the environment and the h-ods in greenhouse extraction processes. Textile products produced in an environmentally friendly way and processed at eco-friendly borders are called ecosystems. In the production of ecotectile, it is important to be aware of the processes of developing an economically, social and environmentally sustainable product. Manufacturers are the most important factor for the production of environmentally friendly textile products[1]. For textile consumers, the issue of the possible impact of textiles on human health is that human ecology is of the most important interest. From a human-ecological point of view, the fact that the product does not have harmful effects on human health is the most important trend.

The main party. Ecological labeling is just one type of ecological labeling that provides consumers with information about the relative ecological quality of products and substances used in the textile industry. Such labeling takes the form of Ecological Signs issued by programs managed at the national or regional level. OEKO-TEX® (International Association for Research and Testing in Textile and Leather Ecology) is most common and most popular certified source for textile products tested for harmful substances globally.

The OEKO-TEX 100 standard focuses on developing methods for testing hazardous substances such as pH, heavy metals, toxic dyes, crop protection agents and carcinogenic substances such as formaldehyde, phenol or pesticide. In addition, the testing methods must also comply with the requirements of these standards. If all components of textile meet the requirements of the Oeko-Tex criteria catalog without exception, the textile manufacturer will receive a certificate and be eligible to use the Oeko-Tex label to brand products in stores[2].

In 1989, OETI developed a testing and certification system due to increased interest in textile ecology and health. This system is defined as "tested by the OTN 100 standard." In 1992, Oeko-tex standards were developed by the German Textile Society (MST) and the Research Institutes of Austria (OTN). In 1992, as a founding member of the OEKO-TEX Association, OETI introduced the standard 100 by OEKO-TEX.[3] This standard is for all levels of production – developed to ensure a comprehensive level of security for accessories such as tomatoes, yarn manufacturing to finished products, including buttons and zippers. The standard applies to textiles and leather products. Textiles with the label OEKO-TEX meet a person's high environmental requirements[4].

Today, OEKO-TEX standards are the most common, of which the OEKO-TEX 100 standard is most commonly used in the European Union[5].

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In 1990, it was distinguished in some countries by its aspirations for ecological policy, ecological modernization and sustainable development. Based on a study of environmental programs and enterprise responses, this study looks at how the textile industry relates to this modernization process, the institutional environment of this industry, and how environmental practices have been changed. This transformation is understood as a reflexive process that strategically responds to programs and institutional building based on enterprises' national environmental modernization strategy[6]. Oeko-Tex is based on ecological policies and sustainable development.

Oeko-Tex is an abbreviation of the International Association for Research and Testing in the Field of Textile and Leather Industry Ecology. It is an alliance of 18 independent textile research and testing institutions in Europe and Japan and their offices around the world. Prior to the project of this Association of Institutions and the Eco-TexLanguage Organization, there were eco-raised developments in Europe from an ecological perspective that existed in the 1990s and 1991s. The goal of the merger was to create the center of an international organization for the development and integration of ecological reliability textiles and testing methods[7].

Member institutions are responsible for joint development and border values, which form the basis of certificates of production sites under OEKO-TEX 100 STANDARD 100 and OEKO-TEX-MADE IN GREEN, as well as OEKO-TEX-STeP. They are eligible for appropriate laboratory tests and object tests. Additional services of the OEKO-TEX Association are ECO PASSPORT on OEKO-TEX® Certificate for inspection of the MySTeP database, chemicals and auxiliary substances for delivery chain control. OEKO-TEX member institutions provide an important impetus for innovation in the textile and sewing industries based on their extensive activities and core responsibilities. Through close cooperation with manufacturers, their accredited testing system also contributes greatly to the development of high-quality textiles[8].

The main objectives of the International Association for Research and Testing for Oeko-Tex 100 include: to learn about organic textile seals in a consumer group, the Oeko-Tex 100 standard and their use, to collect relevant aspects that affect the process, and to purchase sewing products and textilesfrom a customer's point of view It is calculated to determine the future relevance of the textile seals, determine the relevant future criteria for Oeko-Tex, and identify growth opportunities and markets for Oeko-Tex[9].

Awareness of Oeko-Tex is growing in countries all over the world, but the proportion (%) of people in the country is different (Table 1). Especially German, Austrian or Chinese consumers who buy a labeled product or are aware of the product labeled know the importance of eco-friendly production by the Oeko-Tex standard.

Table 1.
Indicator of awareness of labeled product for consumers (%)

Country	n	%
Germany	254	70
China	287	63
Austria	255	61
Switzerland	256	53
Denmark	255	49
Turkey	255	49
Poland	256	40
Italy	258	37
Russia	256	36
Portugal	254	31
Spain	255	27
France	253	25
UK	255	10

More than 160,000 certificates for millions of tagged textile products and more than 10,000 participating companies across the textile chain OEKO TEX 100 are the most common and most popular label for textile products tested for harmful substances globally (Fig. 1).

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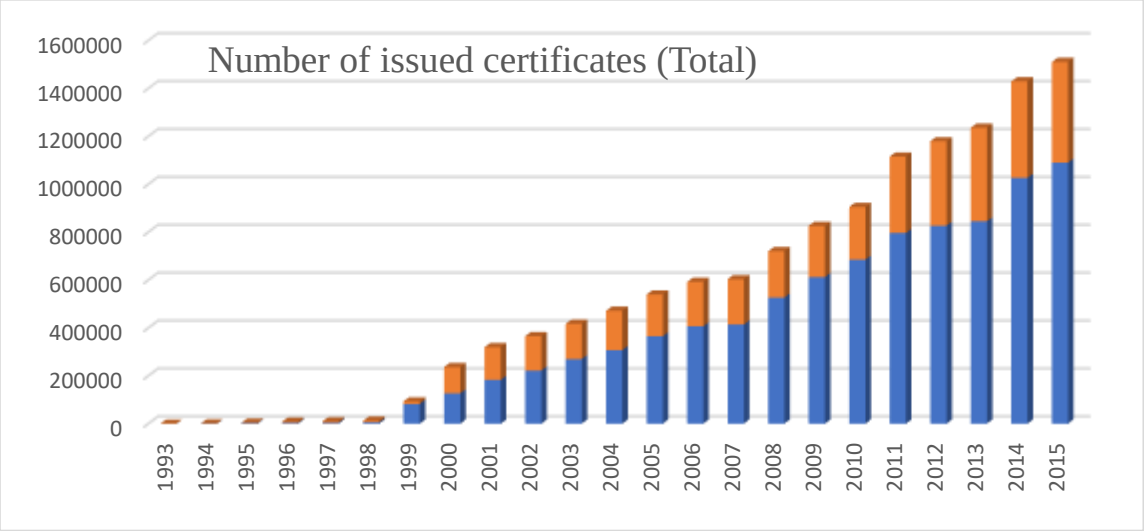

Figure 2 OEKO-TEX 100 - the number of certificates issued worldwide .

TestEX Switzerland's independent testing and certification organization focuses on the textile industry around the world. TESTEX has been involved in testing, analysis and certification since 1846. The laboratory of the TESTEX Institute conducts textile-related physico-chemical tests on fibers, threads, weave and knitting fabrics, inaccuracies and finished products. Their services include tests related to clothing physiology in fabrics and finished textiles. They conduct tests based on requirements for personal protective equipment (PPE). Their laboratory measures color, whiteness and UV permeability (by UV 801 standard) and tests toy safety (mechanical, chemical and physical tests).

TestEX Group has 20 branches and more than 190 employees worldwide. One of the main branches is in North America, Europe and especially in Asia and the Pacific region

The most important factor in the production of eco-friendly textile products through various manufacturers' activities is:

- providing suppliers with resources based on their social and ecological indicators;
- replacement of hazardous substances with safer substances;
- the use of advanced experiences in technological innovation will help to improve the environmental tracking of these processes;
- increasing the exchange of information with retailers, providing them with the latest information.
- innovative solutions for solving stability problems or goals;
- development of environmentally friendly textile products;
- Promote the use of sustainable fibers such as organic cotton, processed fibers, etc.;
- engage in research on new fibers and materials that have less environmental impact on natural fibers;
- Improving the signs of care in products;
- Focus on communication with consumers to develop responsible care in conjunction with retailers for the development of responsible care;
- To promote the repaint of old clothing and textiles and the renewal of fashion, to promote reuse and replication for the production of new clothing instead of using raw materials;
- Communication with consumers on sustainability efforts;
- Demand that suppliers establish international social standards.

For textile consumers, the potential impact of risks from textiles on human health, the so-called human ecology, is of the most important interest. The use of eco-friendly textile fibers is one of the most important stages in the development of human ecology. From a human-environmental point of view, the most important trend is the lack of harmful health effects of the product[11].

(Matthew 24:14; 28:19, 20) Today, the importance of things is combined according to consumer awareness in the process of purchasing clothing or textiles:

- product quality
- skin resistance

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- price;
- textiles examined for the presence of harmful substances;
- social aspects;
- a high percentage of natural fibers
- eco-friendly production;
- functional textiles;
- a manufacturing country; supplier country;
- current fashion;
- brand or manufacturer.

Citing research data, 89% (N=2821) of the consumers surveyed believe that more products, products, should be health-safe and well certified[11]. According to many consumers, the criteria for growing importance in the future are:

- eco-friendly production;
- check skin resistance
- inspection of harmful substances of textile products;
- organic cotton or processed fibers
- product quality
- a high percentage of natural fibers
- observance of social standards;
- independent test.

Therefore, the purpose of the textile industry should be to improve the environmental environment and contribute to sustainable development, achieving harmonious development between people and the ecological environment. Manufacturers of textiles, sewing materials and other products, especially those who want their products exported to the EU market, are increasingly faced with demands that guarantee the ecological cleanliness of their product. In the future, such requests will probably be even harsher in recent times, and the level of EU grades for textiles will also be stricter.

Conclusion. Textile standards provide technical conditions and testing methods for the mechanical, physical and chemical properties of texture fabrics and fabrics, as well as the natural and artificial fibers that make up them. The textile manufacturing industry covered by these standards usually generates fibers such as glass fibre threads, wool and other animal fibers, cotton and other plant fibers, sewing threads, yarn and cotton, by weave, weave or harvest. These textile standards help fabric and fabric designers and manufacturers to test textiles and provide optimal features for final use.

Environmental problems in the textile industry arise in some production processes and they go to ready-made products. In the process of whitening and painting, the next fabric forms a toxin that remains in our ecosystem. Therefore, there is a need to produce textiles and sewing materials that can be considered environmentally friendly and ecologically clean for various reasons.

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