The American Journal of Engineering and Technology
(ISSN – 2689-0984)
Published: November 30, 2020 | **Pages:** 133-141
Doi: https://doi.org/10.37547/tajet/Volume02Issue11-21

IMPACT FACTOR
2020: 5. 32
OCLC - 1121105677

Classification Of Terry Products Made Of Natural Fiber

Akhtam Akramovich Kosimov
Senior Teacher, Department Of "Metrology Standardization And Quality Management", Namangan Institute Of Engineering Technology, Uzbekistan

Shokhida Fakhliddin Kizi Bakhriddinova
Master Student, Course Of Study "Metrology Standardization And Quality Management Training", Namangan Institute Of Engineering Technology, Uzbekistan

Shokirjon Abdurashid Ogli Abdulazizov
Master Student, Course Of Study "Metrology Standardization And Quality Management Training", Namangan Institute Of Engineering Technology, Uzbekistan

ABSTRACT

In this article, one of the best local products, Terry describes the general characteristics, properties, names, and classifications of the products and products, and classifies them to summarize and customize the characteristics of today's products and products. The classification is based on specific products.

KEYWORDS

Classification of Terry products, hair, hair type, towels, fuzzy fabrics.

INTRODUCTION

It is doubtful that there is anyone in the world today who has not heard of terry products and that there is a home where they are not used. Fabrics that come in contact with human skin should have high compressibility and softness. These features are necessary to improve mechanical comfort and appearance. Water absorption is important for fabrics used to dry surfaces or to quickly absorb water from wet surfaces. Therefore, it may be a more important feature for fabrics used near the skin. If the wet surface is human skin, the fabrics used for waterproofing should be mechanically comfortable and able to absorb water. In view of the above requirements, cotton fiber is one of the most promising

The American Journal of Engineering and Technology
(ISSN – 2689-0984)
Published: November 30, 2020 | **Pages:** 133-141
Doi: https://doi.org/10.37547/tajet/Volume02Issue11-21

IMPACT FACTOR
2020: 5. 32
OCLC - 1121105677

materials for the production of such fabrics. Yarns made using cotton fiber provide good absorbency properties. Textile technologists have optimized yarn designs to achieve greater water absorption. Later, engineering modifications were tested on fabric constructions and then on woven fabrics. Thus, many custom-made items are designed to meet the requirements. The main engineering technique used in these designs was to increase the ends of the threads that floated freely on the surface of the fabric.

Terry fabric differs from ordinary fabrics in that it is covered with a soft fabric rather than the usual smooth.

In some cases, fabrics with lower interlocking points show higher water absorption. The demand for water absorption was high, leading to the development of knitted fabrics. In these fabrics, an attempt was made to increase the variable length of the loop yarn to the required level, which led to a change in weaving and structure. These fabrics have rings and types that protrude from the surface.

Wooly Terry is a fabric with a hairy structure with loops on the surface, formed by certain twisting ends. The fabric consists of one back yarn and two system ground and tuck tan yarns. Feathers can form on one side or on both sides of the fabric. The properties and performance of terry fabric are determined primarily by the ring structure, configuration and density produced at the factory. Twisted woolen fabrics are usually made of linen and cotton yarns and are used for towels, sheets, gowns and gloves. Terry fabrics are the most commonly used fabric.

THE MAIN FINDINGS AND RESULTS

Today's world is based on the market, in which quality plays the most important role in the reception of any product, even in the textile industry. Textile matrices and their applications have undergone radical changes in recent decades. The performance of the fabric can be assessed from two perspectives. One of them is useful properties such as strength, color fastness, shrinkage resistance and others. In addition, consumer attention is focused on high efficiency factors such as improved quality in terms of appearance and convenience. Fabrics are considered to be of poor quality due to their loss of functionality and aesthetic appeal. Most of the utility parameters are evaluated using well-installed equipment and standard kits. However, evaluating the quality of fabrics in terms of their functionality and aesthetic appeal is more difficult than evaluating useful performance.

Terry fabric is an important type of fabric that is very important in our daily lives, from socks to hats, from handkerchiefs to bath towels, from foot mats to sheets, from children's fabrics to bathrobes, to gloves. Terry fabrics belong to the group of fur fabrics, which include additional yarns to form a loop called feathers to give them a special function and unique appearance. These fabrics can be produced by weaving and knitting, but the weaving fabric invented by the first method still retains a major share. This is because the properties of woven terry fabric are much better than knitted terry. In addition to the methods used to produce terry fabrics, the fibers used, the properties of the yarns, the weaving properties, the hair density, the geometry of the fur ring and the post-weaving process play an important role in determining

The American Journal of Engineering and Technology
(ISSN – 2689-0984)
Published: November 30, 2020 | **Pages:** 133-141
Doi: https://doi.org/10.37547/tajet/Volume02Issue11-21

IMPACT FACTOR
2020: 5. 32
OCLC - 1121105677

the properties and performance of terry fabrics.

Terry fabrics are characterized by high water absorption and water retention ability. Various researchers have studied static and dynamic water assimilation, water holding capacity, vibration speed, etc. to study the properties of fabrics and yarns [2,3]. The main reason for the development of terry fabric is the high absorption of water, because no other structure can meet this requirement. Many factors related to the swelling of the terry fabric have been studied by many researchers. Twisted mono yarns, low twisted yarns, twisted yarns, baked yarns, etc. have been used successfully to improve the absorbency of terry fabrics. The search for new ways to improve the absorption properties of terry fabrics continues.

The functionality of terry fabrics is primarily determined by its absorbency. In the case of terry fabrics, the absorbent property means that the fabric absorbs water, as well as the ability of the fabric to retain water completely. In addition to assembly, the mechanical comfort of the fabric is another quality indicator for users. The overall appearance of the fabric, determined by the ring geometry, was also a key criterion in the selection of the towel fabric. Unfortunately, these features are not evaluated in normal manufacturing practice, mainly due to the lack of standard equipment and testing procedures. Although some methods have been developed to determine the absorption of hairy fabrics, the results obtained from these methods are not reproducible. Fabric manufacturers and traders still rely on a highly subjective and non-repetitive spray mesh. Other functional tests, such as surface smoothness, softness, and overall feel of Terry's skin, should be performed using standard instruments and procedures. Aesthetic measurement has never been tested in terms of psychological comfort. The delay in this work is due to the fact that the towel is used for a short time and the fabric is not used as a formal item. However, due to economic growth and growing consumer demand, there is a demand for quality towels. It is known that if objective measurement methods for different functional properties of towels are not introduced and multiplied results are not obtained, it will be difficult to use the principles of engineering design to produce high quality towels.

The structure of the fur fabric is divided into two layers: one is the fur layer and the other is the supporting layer. The first consists of hairy threads, weaving and tying threads. Because both sides of the hairy fabric are covered with a layer of hair and the middle is the back layer, the properties of the hairy fabric can be determined by both the hairy and the back layer. The thick layer plays a big role because it comes in contact with the user's skin.

In the manufacture of terry fabrics, there are different fabrics for different hair ring height, hair ratio, hair ring density, number of hair strands, hair fiber fiber mixture, washed, dyed, surface properties, absorption rate, absorbency and more. , it is important to manage all of the above construction parameters to ensure their aesthetic and functional properties. With the improvement of living standards, the aesthetic properties of terry fabrics became as important as their functional properties. The effects of various fiber, yarn, and fabric parameters on absorbency have been studied by several researchers over the years; however, their effect on aesthetic properties has recently been evaluated by Behera and Singx [4]. As the world changes, the importance of

The American Journal of Engineering and Technology
(ISSN – 2689-0984)
Published: November 30, 2020 | **Pages:** 133-141
Doi: https://doi.org/10.37547/tajet/Volume02Issue11-21

IMPACT FACTOR
2020: 5. 32
OCLC - 1121105677

aesthetic properties is growing, so the design and production of quality terry fabrics needs to be addressed.

Terry fabrics are usually used next to worn leather. Compression and friction properties solve the feeling of the fabric. The body's response to these tissues must be studied using some scientific methods that mimic the stresses that occur during fabric use. Although some studies [5,6] have been observed and the effects of some properties on these properties have been evaluated, they do not appear to be sufficient for a complete description of the fabric because the measurement conditions used were far from the current situation. . Recent studies [7] have identified key factors that affect the compression and friction properties of terry fabric during actual use. In order to study these parameters in detail and to better understand their relationship, it is necessary to express some numbers.

The properties of terry fabric depend not only on its raw material, but also on its structure. There are some other factors that need to be studied to study the effects of terry fabrics on friction and compression properties, such as surface properties, hair geometry, hair direction, hair length, hair density, loop height change, hair rotation angle, and loop shape.

In addition to leather, there are other fabrics that can be used as towels. The main function of these fabrics is to absorb large amounts of water. Efforts have been made to include and describe all these structures. Fabrics made using high-absorbency fibers, yarns, and woven structures can be described as towel fabrics. The fibers used in these fabrics are hydrophilic and have a high water absorption.

Yarns used in woolen fabrics, such as towels, have a more open structure, meaning that there is more air space in the body of the yarn. The air gaps in the yarn allow more water to be trapped inside the yarn structure, making it easier for more water to absorb. In addition to the amount of air space in the body of the yarn, the location of the fibers in the yarn also affects the water absorption properties. Towels used in the manufacture of towel fabrics are designed to provide high water absorption. Without this over-processing, the yarns try to maximize the swimming length and reduce the number of interconnection points per unit area of the fabric. At the same time, they try to keep the fabric structure as open as possible. These components of towel weaving help to absorb water at a high level.

Woven fabrics have superior mechanical and functional properties in the towel market, with dimensional stability, compression and softness, and water-absorbing properties. The name “Terry” is derived from the French word “tirer”, which means “outside”, and the Uzbek word for loose historical loops used to make towels. The Latin word “vellus” comes from the word “velor”, which means hair, which is a paste cut from the hair of a towel [1,2].

According to research by the Manchester Textile Institute, the weaving of terry was an accidental result. The study shows that this development took place in Turkey and in Bursa, one of the largest traditional textile centers in Turkey. Terry weaving construction contributes to the further evolution of woven fabrics. Terry towels are still referred to as “Turkish fabrics”, “Turkish towels” or “Turkish Terry”.

Classification of towels

There is a wide classification of towel fabrics, which are shown in Figure 2.1.

The American Journal of Engineering and Technology
(ISSN – 2689-0984)
Published: November 30, 2020 | **Pages:** 133-141
Doi: https://doi.org/10.37547/tajet/Volume02Issue11-21

IMPACT FACTOR
2020: 5. 32
OCLC - 1121105677

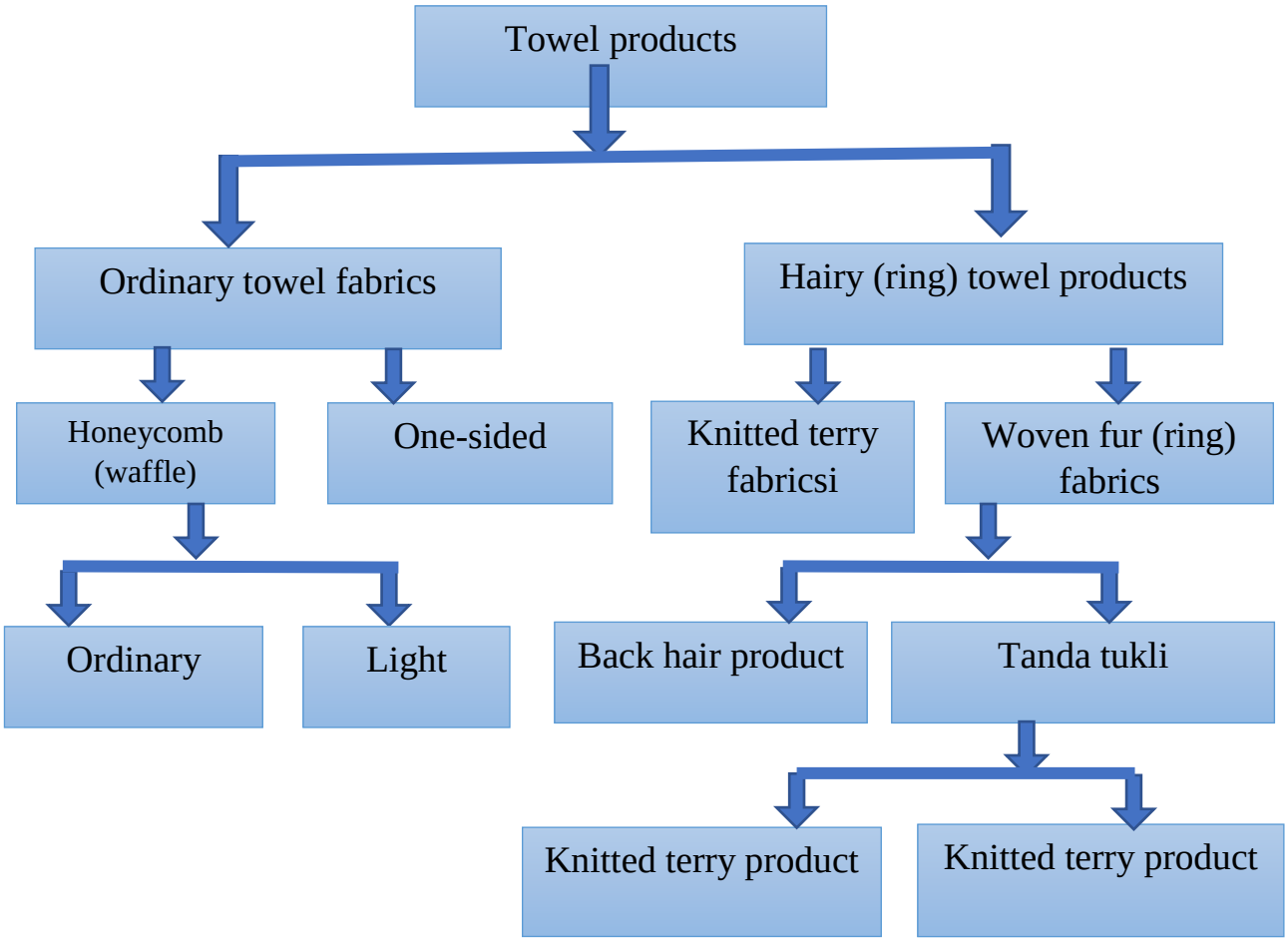

Figure 1. Classification of towel fabrics

Furry fabrics

In textiles, fluffy fabrics are also known as towels. These fabrics are produced using two types of yarns and one series of yarns. Due to the fact that the fabric is made of woven yarn, it is used in large quantities. These fabrics have a very high tissue density, which can be up to 200 per centimeter in the best fabrics. High tissue density can be achieved due to low deflection and high reverse tension. Large torsional stresses require positive weaving

The American Journal of Engineering and Technology
(ISSN – 2689-0984)
Published: November 30, 2020 | **Pages:** 133-141
Doi: https://doi.org/10.37547/tajet/Volume02Issue11-21

IMPACT FACTOR
2020: 5. 32
OCLC - 1121105677

mechanisms. High-speed automatic machines can produce low and medium quality fabrics with special deep threads. The choice of these fabrics is based on the fact that the hair density is from 50 to 100 per cm. Unlike woolen fabrics, woven feathers do not have pieces of yarn.

Vertical fur fabrics

These fabrics have threads or feathers that run along the length of the fabric. The finished yarn is needed to knit two sets, fur and surface, and one set. Feather debris and various weaving racks are delivered at very low voltages from the grounding holes. Warp hair fabrics can be produced using two methods.

1. In the first method, terry fabric is produced using two or three beat beams and one weaving system or two weaving systems. the herd remains uncut. This class is widely used in the manufacture of towels.
2. In the second method, in addition to the simple selections introduced by means of a nozzle, the threads are formed in a certain sequence, only by lifting a strand of hair. Using the same mechanism, these threads are pulled from the fabric after several revolutions of the main lamella, and this forms a feather on the fabric.

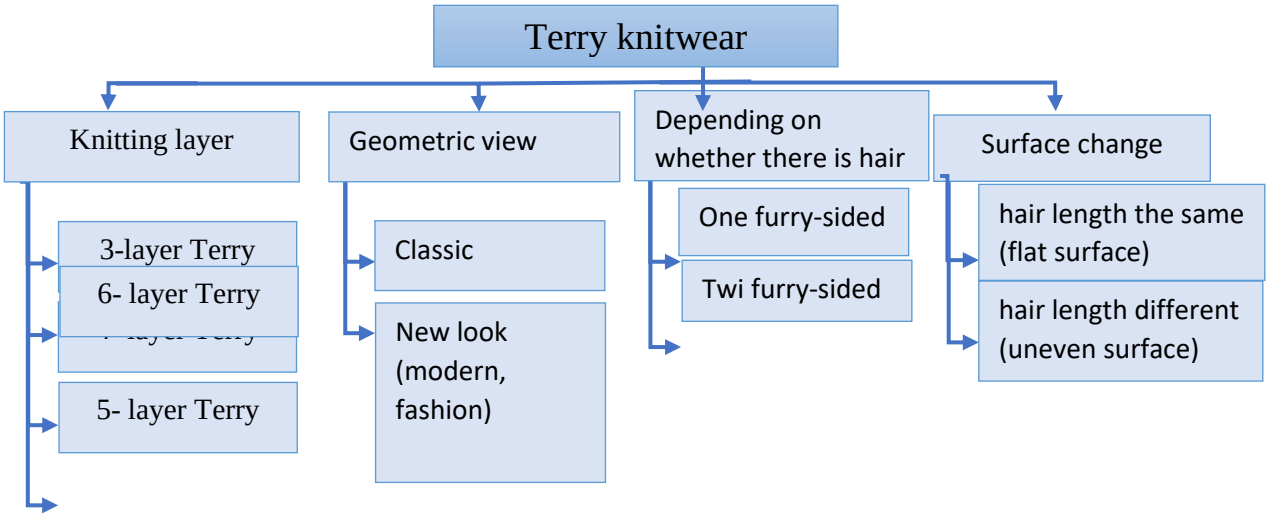

Figure 2. Classification of terry woven fabrics

The hair follicles play an important role in shaping the properties of terry products. Because if the appearance and shape are shaped by the hair, the hair also plays a key role in the appearance of water. A feather is a piece of hair with a definite twist, which is curved and slightly twisted on the surface. To form the base fabric, the base body and back threads are cut. This base fabric holds the loops formed by the hair ends and allows the ring part to be pushed onto the fabric surface. The hairs can be unilateral (face) or bilateral (face and back), depending on the location. Figure 2.3 schematically shows the different types of Terry structures.

The American Journal of Engineering and Technology
(ISSN – 2689-0984)
Published: November 30, 2020 | **Pages:** 133-141
Doi: https://doi.org/10.37547/tajet/Volume02Issue11-21

IMPACT FACTOR
2020: 5. 32
OCLC - 1121105677

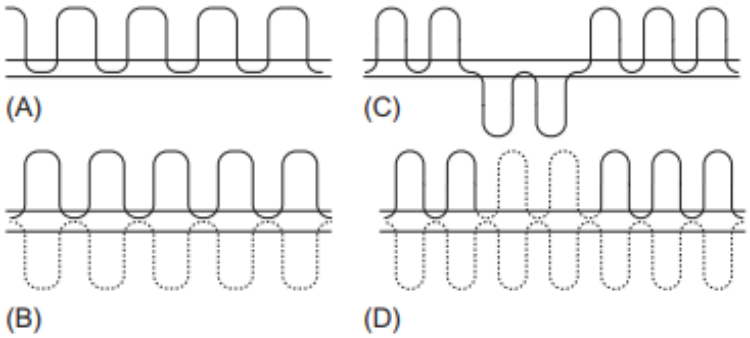

Figure 3 Schematic diagram of different types of terry fur products. (A) One Side Terry, (B) Two Side Terry, (C) Alternate One Side Terry, (D) Two Side Terry.

Figure 3 shows A, a one-sided terry, B a two-sided continuous terry structure, and C a variable hairline of the face and back, which allows hair to form in the open, while structure D shows that the ornament alternates between the face and back. This is done by taking a set of threads of two different colors, creating a shape in one color against the background of the other. All structures except A are inverted.

The ring-shaped structure is very suitable for covering with a towel, because the length of yarns made of absorbent materials is able to quickly accumulate large amounts of moisture. The materials used for towels are usually cotton, and cotton is the best raw material because it not only absorbs moisture easily, but also helps with heavy washing of towel fabrics.

On knitting

Terry fabrics can be classified on the basis of weaving, for example, 2-Terry, 3-Terry, 4-Terry, 5-Terry and others. 2 In the case of terry, it may form on one side of the fabric. However, the stability of the loops is very low due to poor bonding in the main body of the fabric. These fabrics were especially made for robes and lost their market due to the instability of the streets.

The processing of non-terry fabrics replaces mechanical comfort and has been measured with KES instruments for more than 30 years. Paper fabrics have many properties, such as good touch, good absorbency, and good air permeability, and their skins have been hand-evaluated by skilled workers in fabric factories [8]. Recently, when we consider the use of terry fabrics, the demand for quality fabrics has increased dramatically. Most quality characteristics are evaluated using subjective methods, but this is not reproductive, but these quality attributes are governed by some measurable mechanical properties, as in non-terry fabrics. Thus, these mechanical properties were identified and various equations were developed to evaluate terry fabrics to obtain quantitative results that would help to study the structure of the fabric [9]. The study of structural connections helps in the production of fabrics.

On knitting

Terry fabrics can be classified on the basis of weaving, for example, 2-Terry, 3-Terry, 4-Terry, 5-Terry and others. 2 In the case of terry, it

The American Journal of Engineering and Technology
(ISSN – 2689-0984)
Published: November 30, 2020 | **Pages:** 133-141
Doi: https://doi.org/10.37547/tajet/Volume02Issue11-21

IMPACT FACTOR
2020: 5. 32
OCLC - 1121105677

may form on one side of the fabric. However, the stability of the loops is very low due to poor bonding in the main body of the fabric. These fabrics were especially made for robes and lost their market due to the instability of the streets.

The processing of non-terry fabrics replaces mechanical comfort and has been measured with KES instruments for more than 30 years. Paper fabrics have many properties, such as good touch, good absorbency, and good air permeability, and their skins have been hand-evaluated by skilled workers in fabric factories [8]. Recently, when we consider the use of terry fabrics, the demand for quality fabrics has increased dramatically. Most quality characteristics are evaluated using subjective methods, but this is not reproductive, but these quality attributes are governed by some measurable mechanical properties, as in non-terry fabrics. Thus, these mechanical properties were identified and various equations were developed to evaluate terry fabrics to obtain quantitative results that would help to study the structure of the fabric [9]. The study of structural connections helps in the production of fabrics.

As the use of terry cloth was applied to luxury goods, its surface texture and appearance became important. The buyer wants high-quality terry fabric not only in terms of functional properties, but also in terms of aesthetics. In general, the appearance of a fabric is assessed by subjective methods that do not have the ability to reproduce. In addition, colors and patterns depend on individual preferences. Other properties depend on the construction of the fabric and their mechanical properties; Not all mechanical properties have a significant effect on the appearance of the fabric, as not all of them directly affect visual perception. The basic properties of terry fabric have been studied, but their aesthetic properties have not yet been studied. Thus, a realistic approach to assessing the appearance of a fabric takes time, taking into account the secondary determinants of the mechanical properties of the fabric that directly affect visual perception. The structure and appearance of similar structures, such as ring carpets, have been studied by some researchers in the recent past. However, terry cloth is very different from carpet. Therefore, it is also important to understand the importance of the fabric and the appearance of the fabric sewn from the skin, to find a suitable method for its objective evaluation, and to determine the relationship between the properties of the fabric and the yarn.

Fabric manufacturers require an objective and reliable system for measuring the aesthetic and functional properties of terry fabrics, which can be used in product engineering, product manufacturing, and quality management applications. Recently, research has been conducted to test the suitability of image processing methods to objectively assess the structure and appearance of terry fabrics [4]. It also examines how yarn and fabric parameters affect the structure and appearance of terry fabrics. Their findings can help the manufacturer produce fabrics with the best textures and appearance. Based on the above discussion, this study focuses on the objective evaluation of fur fabrics in terms of geometric properties of the fabric, surface properties, low stress mechanical behavior, absorbency, aesthetic properties and serviceability.

The American Journal of Engineering and Technology
(ISSN – 2689-0984)
Published: November 30, 2020 | **Pages:** 133-141
Doi: https://doi.org/10.37547/tajet/Volume02Issue11-21

IMPACT FACTOR
2020: 5. 32
OCLC - 1121105677

CONCLUSION

The life of any product is crucial in its price and sales. If the customer quickly loses the aesthetic appeal of the fabric, he can declare it unusable. As the fabric wears out, it may not attract it quickly. The effect of various fabric softeners on the water permeability of terry fabrics has been studied by many researchers. In addition to absorbency, other properties such as texture, appearance, compression, friction, etc. are in demand today. Washing the fabric several times will affect the water absorption and the capacity of the fabric. Washing at home also affects the texture, appearance, compression, friction, and other properties of terry cloth. Therefore, the research was aimed at studying the effect of home washing on all the properties of terry fabrics, so that the manufacturer can get acquainted with the basic composition and material parameters that need to be changed to improve their performance.

REFERENCES

1. Jitendra P.S, Swedesh V. Woven Terry Fabrics, Woodhead Publishing Series in Textiles Volume Number: 184.
2. Karahan M. Experimental investigation of the effect of fabric construction on dynamic water absorption in terry fabrics. Fibres Text East Eur 2007;15(3):74–80.
3. Humphries M. Fabric glossary. Upper Saddle River, NJ: Pearson Education Inc.; 2004. p. 267.
4. Humphries M. Fabric references. 3rd ed. Upper Saddle River, NJ: Pearson Education Inc.; 2004. p. 267.
5. Bozgeyik K. A quantitative investigation about towels. MSc Thesis. Izmir: University of Ege, Institute of Natural and Applied Science, Department of Textile Engineering; 1991.