

# A Review on Textile Fibers

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**Abstract**— The word textile is derived from a Latin term textiles for woven fabrics. The word textile mean a woven material or a fiber, a yarn or a fabric. There is a growing demand for textiles and clothing by people of all kinds of life. With the technological advancement in textile industry various types of fabrics all available in the market. Textile industry produced a wide variety of fibers or fabrics to meet the demand of the consumers .so basically a fiber is the fundamental or basic unit of textiles.

**Keywords:** Fiber, Textiles, Fabrics, Clothing, Textile Industry

## I. INTRODUCTION

Fiber is a basic unit or raw material of textiles. It is defined as a thin, fine hair like substance which is used as a fundamental unit for making different fibers and fabrics. It has high length to width ratio for being processed into a fabric. It is a smallest visible unit of textile product. A group of fibers is used for make yarns and fabrics. Thus fibers are the essential component for making yarns. Fibers can be obtained from many natural sources or manmade sources. Textile fibers are those fibers which can spun into a yarn and made into a fabric by interlacing in a variety of machines including knitting, weaving etc. The common Fibers that are used for fabrics are obtained from different sources. There are few fibers which are naturally available.

## II. CLASSIFICATION OF FIBERS

Fibers are obtained from May natural sources and manmade sources. We get most of our clothing from natural Fibers. But with the advancement of science and technology manmade Fibers are also used in our daily routine. These Fibers are looks like a natural Fibers except their chemical composition. Some are very soft, short and others are hard and long. These are may be different from each other in many terms such as weak, strong, colorless, colored etc.

According to length Fibers can be classified as

- 1) Staple fiber
- 2) Filament fiber

Filament is also classified into two types that are as:-

- a) Multi filament
- b) Mono filament

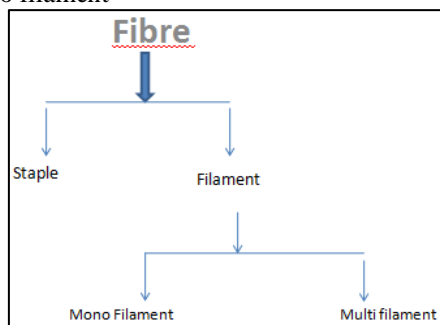


Fig. 1:

- 1) Staple Fibers are those Fibers which are short in length. It is measured in inches. It includes all natural Fibers except silk. Manmade Fibers if cut in short length are also called staple Fibers. Staple Fibers are used for blending. Cotton and wool are the examples of staple Fibers.
- 2) Filament Fibers are type of Fibers having extreme and continuous length. Such as synthetic Fibers which can made to any length. These are manmade Fibers or natural Fibers having continues length. It is measured in yards or meters. These are endless fine and smooth single strands produced by different methods. There are two types of filament Fibers that are as follows:-

### A. Mono Filament

These are made up of single fine strand. These are solid, strong and smooth. The fabrics made from this are good and durable. These are mainly used for Hosiery textiles.

### B. Multi Filament

These are made from number of tiny filaments twisted together .The size and number of filaments varied widely. These kind of yarns are smooth, soft and good textured. These are mainly used for dresses.

## III. CLASSIFICATION OF TEXTILE FIBERS ACCORDING TO SOURCE & ORIGIN

According to the source from which textile Fibers are obtained Fibers are classified into two types that are as

- 1) Natural Fiber
- 2) Manmade Fiber

Both are further classified according to their origin as shown in fig.

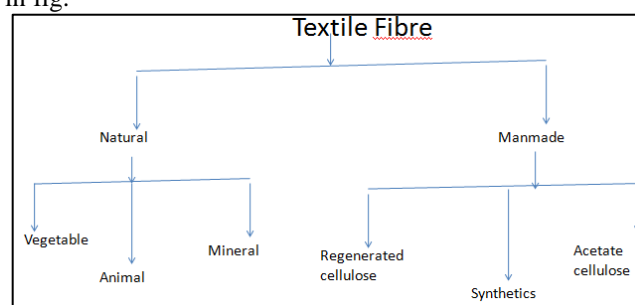


Fig. 2:

### A. Natural Fibers

Natural Fibers are those Fibers that are present in nature. These are may be of plant origin or animal origin. Fibers obtained from plants are called vegetable Fibers and those obtained from animals are called animal Fibers.

#### 1) Vegetable Fibers

The Fibers that are derived from plants are called vegetable Fibers. These Fibers are generally based on arrangement of cellulose. Cellulose is the basic material of all plants life. Vegetable Fibers also called Cellulosic Fibers. Cellulose is

formed as a linear chains of glucose unit's bounds to each other. Cellulose is made up of elements like carbon, hydrogen and oxygen. These Fibers have low resilience, high density and good conductor of heat. They are highly absorbent and resistant to high temperature. In plants the Fibers are generally present in stem portion, such as stem of flax, jute and hemp etc. These fabrics are cool and comfortable in summers.

#### 2) *Animal Fibers*

The Fibers which are obtained from animals are called animal Fibers. Wool and silk are common examples of animal Fibers. They are made up of protein molecules as a main thing, which are made up of repeated units of amino acids. The basic elements in the protein molecules is carbon, hydrogen, oxygen and nitrogen.

#### B. *Manmade Fibers*

Manmade Fibers are those Fibers that are not natural, but artificially made by man. Manmade Fibers looks like as the natural Fibers except their chemical composition. Most of our clothing is made by manmade Fibers. Manmade Fibers are polymeric in nature. It made up by many units joined together by chemical bonding. Rayon, nylon, polyester, rubber, lycra are some examples of manmade Fibers.

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