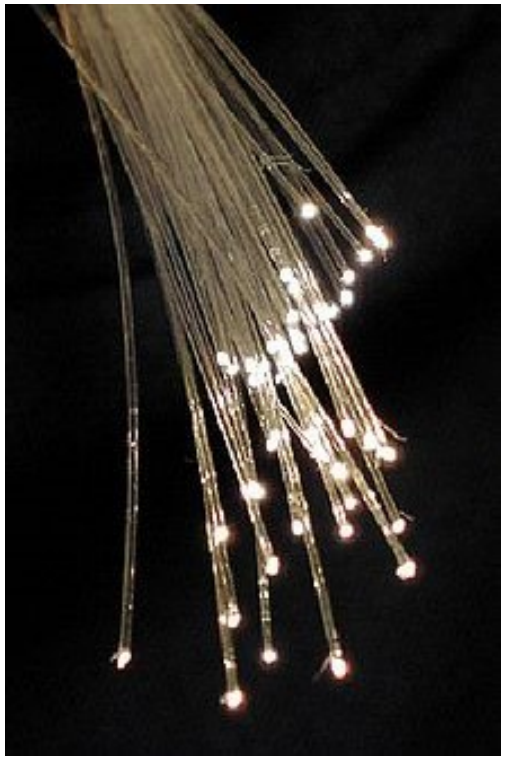
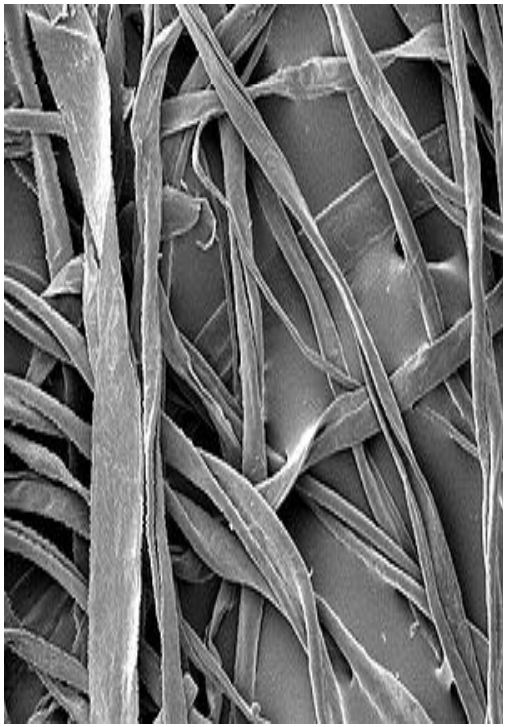
TEXTILE FIBRE





TEXTILES

- **A Textile or cloth is a flexible material consisting of a network of natural or artificial fibres often referred to as thread or yarn.**
- **Yarn is producing by spinning raw fibres of wool, silk, cotton or other material to produce long strands.**
- **Textiles are formed by weaving , knitting, knotting or pressing fibres together.**

FIBRE

- **Fibre: The material , which consists fibrous structure and length is thousand times higher than its width is called fibre.**
- **Technically the term “fibre” or textile fibre means a unit of matter which is capable of being spun into a yarn or made into a fabric of any nature or character.**
- **According to textile institute, fibres are defined as the units of matter characterized by fineness, flexibility and high ratio of length to thickness.**

FIBRE

- **To be textile fibres it should have length to width ratio more than 100:1.**
- **Almost all the textile fibres have length to width ratio more than 1000:1.**
- **Typical ratios for several natural fibres are as follows:**
- **Cotton=1400, wool=3000**

Textile Fiber is the raw material required for the textile industry.

Classification of textile fibre

Classification of textile fibres can be done in many ways. Some of them are as follow

1. **Classification according to their nature and origin**
2. **Classification based on Length**
3. **Classification according to their ability to attract water, i.e. moisture absorption.**

Classification of Fibre according to their nature and origin

Natural fibers

Man made fibers

Fruit Fibres

Coconut-Coir

Pineapple

Banana

Vegetable

Cotton bolls

Jute plant

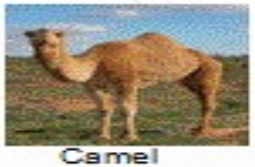
Ramie

Sisal

Abaca

Animal

Silk cocoon

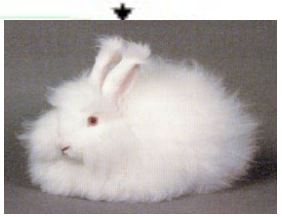


Camel

Spider silk

Wool

Mohair



Angora Rabbit

Polymer

Acrylic

polyester

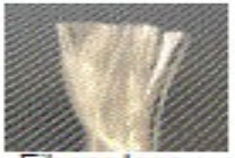
Nylon

Spandex

Acetate

Rayon

Mineral

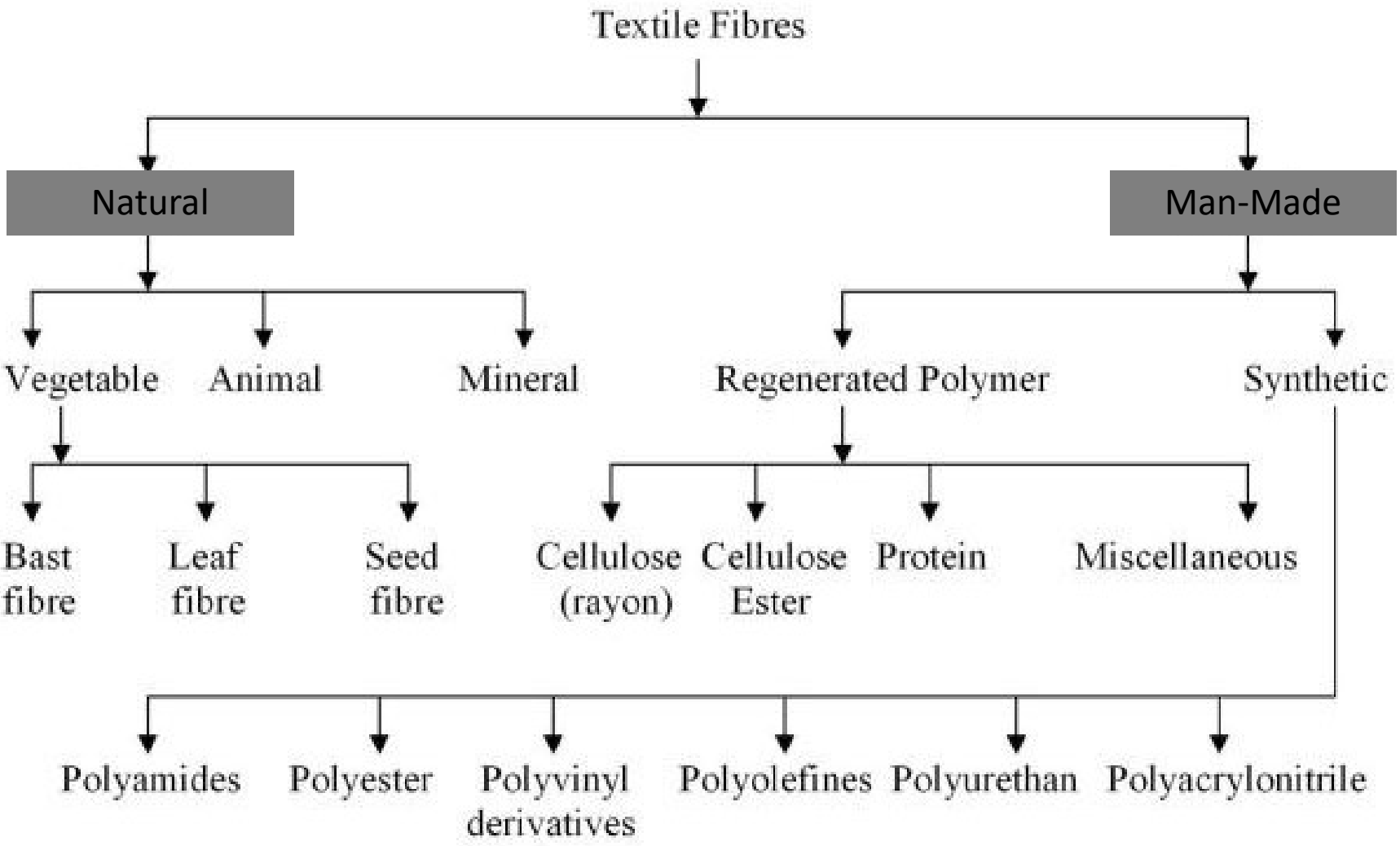


Fiberglass

Carbon

Asbestos

Asbestos Rock


Textile Fibres
Natural
Man-Made
Vegetable
Animal
Mineral
Regenerated Polymer
Synthetic
Bast fibre
Leaf fibre
Seed fibre
Cellulose (rayon)
Cellulose Ester
Protein
Miscellaneous
Polyamides
Polyester
Polyvinyl derivatives
Polyolefines
Polyurethan
Polyacrylonitrile

1. Natural fibres

- **The term natural fibres means any fibre that exists as such in the natural state. They are obtained from plants, animals, or minerals and can be further classified into three following groups**
- **Vegetable fibres:**

1. **Fibres growing on the seeds(cotton, kapok etc)**
2. **Fibres are grown as the Stem of plants (Flax, Ramie, Hemp, jute etc)**
3. **Fibres collected from leaves (sisal, abaca etc)**
4. **Fibre collect from skin of fruit or fruit plant**

2. Animal fibres

- **After the coagulation of the mucus thrown up by the body of silk worm (silk fibre)**

- **Fibres are found from Hair (sheep wool, cashmere wool, camel wool, mohair etc).**

3. Man made or artificial fibre:

- **Manmade fibre means any fibre which is derived by an artificial process from any substance which, at any point is not a fibre.**
  eg: Polyester, Nylon

4. Regenerated fibre

- **The fibres regenerated from natural cellulose sources like wood pulp or cotton linters are referred to as regenerated fibres.**
- **However a certain variation in degree of polymerization occurs resulting in some modified physical properties of the regenerated fibres that essentially differ from the original one. i.e. viscose rayon and Acetate etc belong to this category.**

5. Minerals fibres:

- **The only natural fibre occurring from minerals in asbestos. There are several kinds of asbestos fibres, all of which are fire resistant and not easily destroyed or degraded by natural process.**
- **They are usually used as the non combustible insulation materials**

Classification according to their ability to attract water, i.e. moisture absorption

Hydrophilic Fibre :

The fibres which have the ability to absorb water is known as Hydrophilic fibre. ie. Cotton , Jute etc.

Hydrophobic Fibre

- **The fibres which do not have ability to absorb water is known as Hydrophobic fibre. ie. Polyester , Nylon etc**

Classification according to their LENGTH

Staple Fibre :

The fibres that have finite or limited length are known as staple fibre i.e. Cotton , Jute etc.

Classification according to their LENGTH

Filament Fibre:

The fibres that have infinite or unlimited length are known as filament fibre such as Silk