

26

FABRICS IN THE MARKET

26.1 INTRODUCTION

Indian market is flooded with large variety of fabrics. There is also an equally large variety of soaps, detergents, stain removers, fabric brighteners, etc. available which claim to give the best of wash and finish to all and any type of fabrics. Laundering of these fabrics you would think is therefore easy. Well, it may be, till you spoil a garment because you just followed the instruction given on the wrapper of the soap, detergent, bleach or stain remover. If it is your own you will probably gulp the loss with a pinch of salt. But imagine the situation you would be in when the damaged item belongs to a customer. In a business you cannot afford to annoy a customer. Besides, you can avoid such situations. All you need to know is how the fabrics behave with the different aids used for washing them.

26.2 OBJECTIVES

After reading this lesson you will be able to :

- name and classify most of the fabrics available in the market;
- describe the characteristic features of each group of fabrics;
- demonstrate the burning test and the comparative picture of each fabric/fibre;
- relate properties to laundering needs of the fabric.

SUGGESTED ACTIVITY

Collect as many samples of fabrics as possible from home, tailor's shop, cloth shop or from friends. Also, try to name each sample collected. Take the help of a shopkeeper, friend or people at home. Following is probably the list of fabrics you have collected :

Khadi	Tabby silk	Tweed	Nylon	Terrycot
Poplin	Mysore Silk	Ruffle	Polyester	Terrywool
Terysilk	Kanjivaram silk	Banaras silk	Pashmina	Acrylic
Cambric	Shot silk	Rabbit Wool	Chinasilk	
Muslin	Khadi silk	Angora Wool		
Voile	Chinon			
Markin	Chiffon			
Casement	Tussar silk			
Glazed cotton				
Rubia				
Organdy				

You can add many more names of fabrics because the list is endless.

26.3 FABRICS

Do you notice that instead of giving a long list of fabrics we have put them in groups? Can you name these groups? Yes you are right, these are cotton, silk, wool, synthetics and blends. As we said earlier you can add many more fabrics known to you in these groups, specially when you understand the basis for this grouping and also the meaning of the terms like synthetics and blends.

Can you think of any basis for above grouping? Yes, one is that fabrics in each group will behave in similar manner when you treat them with soaps, detergents and chemicals. These would also need similar maintenance i.e. drying, finishing, sorting, etc. Hence when a garment comes to you for laundering all you have to do is to know the group to which it belongs and launder it accordingly.

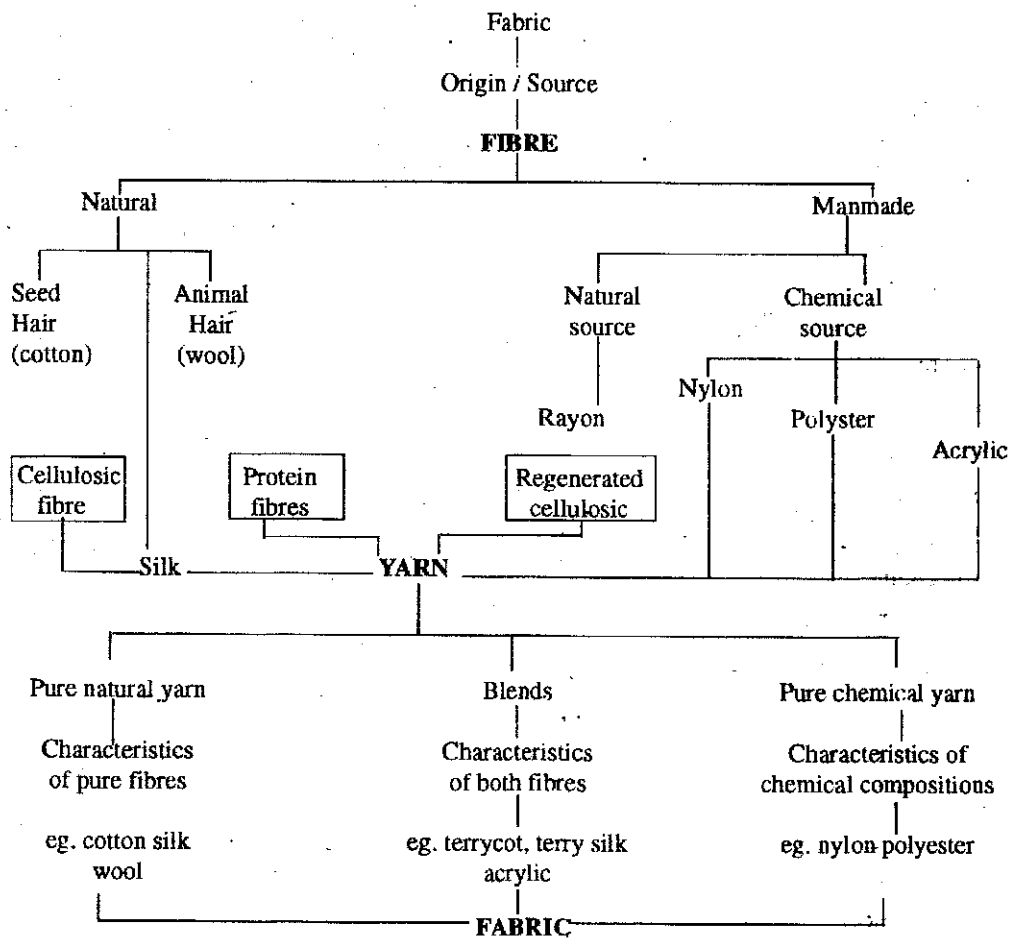
In order to understand how the fabrics in each group will behave in laundering procedures and with accessories, you need to know more about these fabrics. You, infact, need to know their origin, composition, characteristics/properties, special finishes given to them and much more. This is another basis of the grouping that we have presented to you. Look at the chart. Can you locate these fabrics on it?

From this chart you can make out that every fabric has a source and this source has some basic properties or characteristics. Cotton is from seed hair and is cellulosic in nature; nylon is purely chemical and terrycot is a blend of two fibres — cotton and tereylene. That is why it shows characteristics of both the fibres.

You can also see that every fabric passes through the following.

Fibre → Yarn → Fabric

Today we can do many things to the fibre, to yarn and to the fabric to produce the variety of fabrics we have in the market. It is because of this we are able to identify or not identify a fabric.



INTEXT QUESTIONS 26.1

(A) Tick (✓) on the most appropriate answer :

1. The basic for grouping of the fabric is the

- (a) availability in the market
- (b) origin of the fibre
- (c) brand name
- (d) colour

2. Organidie is a

- (a) cotton
- (b) rayon
- (c) silk
- (d) acrylic

3. Chiffon is

- (a) acrylic
- (b) rayon
- (c) cotton
- (d) silk

4. A 'blend' stands for
 - (a) a pure fibre
 - (b) 60% pure fibre
 - (c) mixed fibre
 - (d) 50% pure fibre
5. Animal hair are
 - (a) cellulosic
 - (b) regenerated cellulose
 - (c) protenic
 - (d) chemical
6. Seed hair are
 - (a) cellulose
 - (b) protein
 - (c) chemical
 - (d) regenerated cellulose
7. Example of pure natural fabric is
 - (a) acrylic
 - (b) china silk
 - (c) nylon
 - (d) wool
8. Polyester is a pure
 - (a) acrylic
 - (b) proteinic yarn
 - (c) chemical
 - (d) regenerated yarn
9. Cottons have good affinity for dye and colours are generally fast. When do these colours fade easily ?
 - (a) when yarn dyed
 - (b) when hand printed
 - (c) when fibre dyed
 - (d) when dyed by machine

SPECIFIC FABRICS

Let us now learn about the specific properties of each group of fabrics shown in the chart. Once you know these you will be able to handle the fabrics coming to you for laundering, more efficiently.

26.4 CELLULOSIC FABRICS

1. Cotton

Cottons have a very wide application in *household items* and in *apparels*. Look around in your house and see where all you have items made of cotton.

You know that the origin of cotton is from plants. This is why the basic composition of cottons is **cellulose**. What is cellulose? It is a substance that exists in the cell walls of a plant and is used for making paper, plastic, and various textiles and fibres.

All cellulosic fabrics are made from *cotton fibre* which is converted into a *yarn* a techniques called spinning. The yarn is then woven and given different *finishes* to give a variety of *cotton fabrics* you are familiar with. We will tell you about these finishes in another lesson.

General characteristics

Here we will only talk about the characteristics which are important from the point of view of laundering the fabric.

- Cellulosic fabrics are heavier in weight in comparison to any other fabric hence they occupy more space.
- These have low elasticity and resilience hence they wrinkle easily and do not loose the wrinkles readily. This means they will have to be ironed definitely.
- These fabrics absorb water easily hence they are slow to dry after wetting.
- These fabrics tend to burn *easily*, with a quick *yellow flame* and give off smell like that of a burning paper.
- The fabrics can bear dry heat but continuous high dry heat will *scorch* them. Have you noticed that on an automatic electric iron cotton and linen settings are the highest temperature settings on the dial. The fabric will have to be ironed with real hot iron and to avoid scorching it will have to be dampened evenly.
- Cellulosic fabrics are not easily affected by alkalies or bleaches. Strong mineral acids are harmful. They can also withstand high water temperatures. These properties permit laundering of these fabrics with strong detergents, controlled bleaching and hot water temperatures.
- Cellulosic fabrics are also not attacked by most insects. Only heavily starched fabrics are likely to be attacked by *silverfish*.
- Fungi and mildew leave ugly stains on these fabrics specially if they are stored while still damp or in dampness.
- Cotton has good affinity for dyes hence colour fastness is generally good. Results are good when they are dyed at the fibre or yarn stage. Colour applied to the fabric (printing or dyeing of the fabric) is not so satisfactory.

INTEXT QUESTIONS 26.2

(A) Tick (✓) on the most appropriate answer :

1. Nature of cotton is
 - (a) cellulose
 - (b) protein
 - (c) chemical
 - (d) artificial
 2. Cellulosic fabrics when compared with other fabrics, are
 - (a) heavier
 - (b) same weight
 - (c) lighter
 - (d) artificial
-

3. Cottons need ironing because they are low in
 - (a) elasticity and resilience
 - (b) cellulose and elasticity
 - (c) absorbency and resilience
 - (d) absorbency and elasticity
4. The fabric when burns gives a smell of burning
 - (a) hair
 - (b) soap
 - (c) paper
 - (d) starch
5. When cotton burns it gives a
 - (a) white flame
 - (b) blue flame
 - (c) yellow flame
 - (d) orange flame
6. Which of the following is most harmful to cottons?
 - (a) acids
 - (b) bleaches
 - (c) alkalies
 - (d) heat
7. Which of the following leave ugly stains on cotton fabric?
 - (a) mildew
 - (b) alkalies
 - (c) acids
 - (d) blue

2. Rayon

Rayon are manmade cellulosic fibres. Cotton waste or fibrous woodpulp is utilized to produce this fibre. These are dissolved in chemicals to produce a solution that is forced through a metal plate with tiny holes. Exposed either to heated air (dry spinning) or a chemical solution (wet spinning) the result is long hair like filaments used for making yarn. This yarn is used to produce fabrics called artificial silks-crepe, satin, gorgette etc.

Characteristics : Rayons are not firm and crisp like cottons. They also stretch and shrink much more than cottons.

- Strength of rayon is considerably low when wet. Hence these fabrics need special care while laundering. Friction while washing eg. rubbing and scrubbing, can damage the fabric.
 - Rayon tends to wrinkle badly unless it has the wrinkle resistant finish. *Tebilized* is the trade mark for wrinkle resistant finish. If the fabric is not given this finish care will be required while washing, rinsing and drying.
 - Rayons shrinks on washing and more on subsequent washing. With ironing, the fabric may or may not stretch back to original measurements.
-

- Rayons must be ironed with irons heated at low temperature. Very high temperature produces scorching of the fabric, long exposure to high temperature damages the fabric.
- Rayon burns like cotton giving out the smell of burning paper. A soft-gray ash remains on burning.
- Rayons are damaged by alkali and acids alike. Chlorine bleaches can be used but perborates are even safer. The soap/detergent will also have to be alkali free.
- Mildew and silverfish both are harmful to rayons. Even excessive exposure to sunlight is harmful.

INTEXT QUESTIONS 26.3

(A) Tick (✓) on the most appropriate answer :

1. Rayon is
 - (a) cellulosis fabric
 - (b) protein fabric
 - (c) chemical fabric
 - (d) regenerated fabric
2. Rayon can tolerate
 - (a) moderately hot rayon
 - (b) very hot iron
 - (c) hot iron
 - (d) no ironing
3. When wet, rayon
 - (a) loose strength
 - (b) is as sturdy as when dry
 - (c) gains strength
 - (d) is in as much need of care as when dry
4. Rayon burns
 - (a) like cotton
 - (b) like silk
 - (c) like polyster
 - (d) like wool
5. The ash that is left behind on burning of rayon is
 - (a) black
 - (b) white
 - (c) soft gray
 - (d) deep gray
6. The soap detergent use to wash rayon should be free of
 - (a) acid
 - (b) acid & alkali
 - (c) alkali

7. Rayons take colours (dyes) well because they
- are cellulosic
 - can take high temperature
 - are absorbant
 - are not damaged by acids

(B) Fill in the blanks with the most appropriate words :

- Mildew and silverfish have _____ effect on rayon.
- Tebilised is the trade mark for _____ finish on rayon.
- Rayon _____ on washing and has to be _____ to bring it to original shape.
- Excessive _____ also has harmful effect on rayon.
- _____ can melt the fabric.

26.5 PROTEIN FIBRES

Two basic groups of protein fibres are (i) wool (ii) silk. There are many properties which are similar and some which are different. Let us know more about them.

A. Wool

These fibres are animal hair and majority of fibres in this group are sheep's wool. Some other animals whose hair can be used as wool are camel, alpaca, lama, rabbit, cashmere and angora goats.

Characteristics

- Wool has lot of elasticity and resilience. As such, it does not wrinkle easily. When hung in damp atmosphere, even the creases that have set in by ironing became faint.
- Wool is a very absorbent fibre. Fortunately it does not feel wet on the surface, also, it gives up moisture with difficulty.
- Spilled water runs off the wool easily making it water repellent too.
- Wool has a tendency to shrink and felt. This can cause the fabric and the garment to decrease in size. The shrinkage is progressive and therefore wool will continue to shrink with subsequent laundering. Cool washing with minimum of handling can avoid this shrinking, pre-shrinking treatment also can help in avoiding shrinkage in the garment.
- Wool burns if a flame is held to the fabric but it burns slowly. If flame is removed it extinguishes by itself. Dry heat damages the fabric. Hence wool is always pressed with hot iron but with a wet or moist muslin cloth in between.
- Strong alkali also damages the wool fibre. That is why any soap or detergent which has free alkali in it cannot be used to launder wool. Dilute acids donot harm wool.

Chlorine and its compounds should not be used on wool. *Hydrogen peroxide* or *Sodium perborate* only should be used for *bleaching*.

Organic dry cleaning solvents e.g. petrol can be used safely on wool.

Wool is easily damaged by moth and carpet beetles. Soiled clothes are more readily damaged.

INTEXT QUESTIONS 26.4

(A) Tick (✓) on the most appropriate answer :

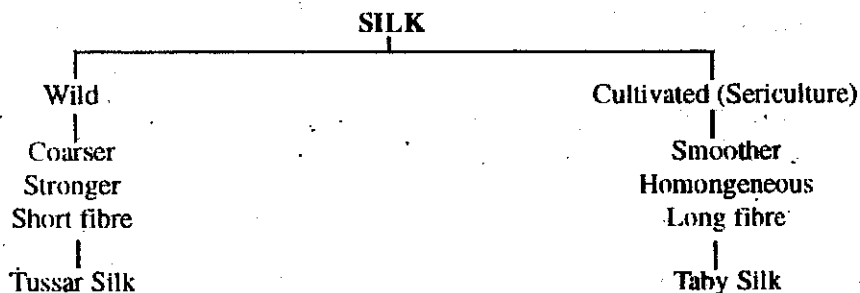
1. Wool does not wrinkle easily because it has the properties of
 - (a) elasticity and resiliency
 - (b) absorbency and resiliency
 - (c) repellency and elasticity
 - (d) absorbency and elasticity
2. Wool must be ironed
 - (a) directly with moderately hot iron
 - (b) with a cloth in between
 - (c) with a moist cloth in between
 - (d) with a paper in between
3. Use a soap/detergent to wash wool, which is
 - (a) acid free
 - (b) acid and alkali free
 - (c) alkali free
 - (d) in liquid form
4. The best bleach for wool is
 - (a) chlorine
 - (b) calcium chloride
 - (c) hydrogen peroxide
 - (d) sodium chloride

(B) Fill in the blanks / complete the sentence.

1. Wool is water _____ and gives up _____ with difficulty.
2. Wool has tendency to _____.
3. Wool burn when _____.
4. Wool extinguishes when _____.
5. Dry heat _____.
6. Shrinkage in case of wool is _____.
7. Carpet beetle _____.

B. Silk

Silk fibre is a natural filament fibre, made by the silk worm when it builds its cocoon. It is possible to unwind the cocoon and get one long filament fibre.



Characteristics

- Natural colour of silk is *off-white to cream*. Wild silk is *brown* with medium to high lustre.
- Strongest natural fibre, slightly less strong when wet.
- Absorbency is good and hence takes colour easily and dyes bright. Remember, silk dye are different from dyes used for other fabrics.
- Silk does not stretch or shrink to significant extent.
- Silk fibre burns when flame is shown to it and extinguishes when flame is withdrawn. Dry heat damages the fibre hence ironing has to be done at low temperature.
- Neither mildew nor moth, but carpet beetles harm the fabric.
- *Sunlight* is harmful for silk and so is *ageing*.
Old silk garments are less strong than new.
- Silks are susceptible to bleeding when washed. Hence dry cleaning is more suitable than laundering. Use mild detergent and lukewarm water for laundering.
- Silk are readily damaged by acids and alkalies. Mild acids like lemon juice or diluted vinegar can be used safely. Infact these help in restoring its lustre. Only hydrogen peroxide can be used as a bleaching agent, chlorine bleaches are very harmful.
- Weighting (starching) adds body to silk but also causes it to crack and damage quickly it would otherwise.

INTEXT QUESTIONS 26.5

(A) Tick (✓) on the most appropriate answer :

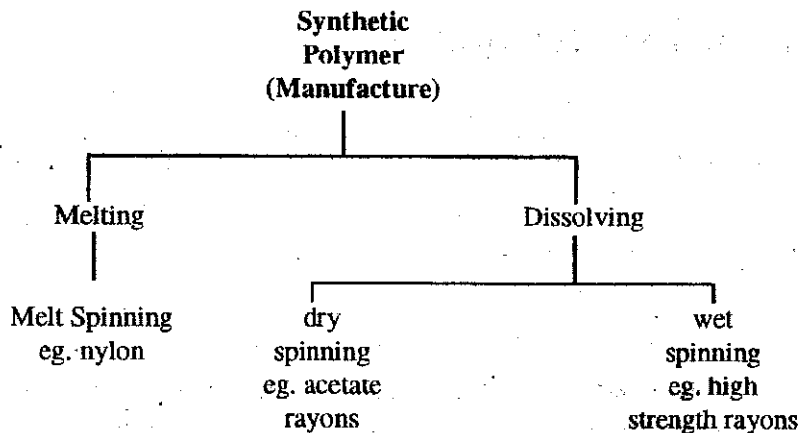
1. The natural colour of silk is
 - (a) cream
 - (b) off-white
 - (c) beige
 - (b) white
 2. When washed silk
 - (a) stretches
 - (b) is not affected
 - (c) shrink
 - (b) thickness
 3. Silk dyes well because of its
 - (a) absorbency
 - (b) strength
 - (c) off whiteness
 - (b) thickness
 4. Best bleach for silk is
 - (a) chlorine
 - (b) hypo chloride
 - (c) hydrogen
 - (b) calcium chloride
-

(B) Complete the following sentences:

- (a) Sunlight is _____
 (b) Silk is not affected by _____
 (c) To restore lusture of silk after washing use _____
 (d) The process to add body to silk is called _____
 (e) Silk can crack and damage if there is too much of _____

26.6 SYNTHETIC FIBRES

Man-made fibres are dominating the modern textile industry. The fibre formation in the case requires the *synthetic polymer* (raw materials) to be converted into *liquid* in order to spin a *yarn* out of it. This is done by (i) *dissolving* the polymer into a liquid. The *liquid polymer* is then passed through a *spinneret* to produce the yarn.



Melt Spinning

The polymer chips are melted and the molten is passed through a spinneret. Cool air current is passed over the fibre causing it to harden.

Dry Spinning

The polymer is dissolved in a solvent and the liquid is passed through a spinneret into circulating current of hot gases. The solvent evaporates leaving behind a hardened filament.

Wet Spinning

The dissolved liquid is passed through spinnerets into a liquid bath, which causes coagulation of the fibre.

Many treatments are given to the fibre at this stage to produce a variety of fabrics.

Heat Setting

Synthetic fibres are thermoplastic i.e. sensitive to heat. Hence when exposed to heat they may *shrink*. In order to prevent this shrinkage they are treated with heat after spinning to set them into permanent shape.

Characteristics

Although each synthetic fibre has specific qualities but synthetic fibres as a class have the following common characteristics:

- All synthetics are thermoplastic fibres i.e. they are sensitive to heat. Many shrink/melt on application of excessive heat. Many shrink melt on application of excessive heat.

- Synthetics are also hydrophobic or water resistant. This means their absorbency is poor. Hence dyeing them is difficult. They dry quickly after washing.
- Synthetics are generally smooth and slippery to touch. Fibre may *pill* because their strength prevents the wearing away of tangled ends. Have you noticed tiny knots on the surface of synthetics which are in use? This is due to pilling of the fibre.
- Synthetics also have *affinity for grease* and it penetrates in to the fibre. Grease stains, therefore is very difficult to remove. Since the dirt also clings to the garment through grease it is very difficult to clean them.
- Synthetics are not affected by mildew or insects or even bacterial growth. They are also resistant to many chemicals.
- Synthetics don't stretch or shrink, but high temperature damage the fibre/fabric. This is why washing and drying temperature must be controlled.
- Colours are usually fast and are not easily affected by laundering.

26.7 BLENDED FABRICS

Today you will find a large variety of fabrics in the market which are not pure but are blends. It means that these fabrics are made by mixing two basic fibres. For example terecot is the blend of cotton and terelene, terywool is a blend of wool and terelene. Blending is done for two reasons.

- (i) to improve the quality of the fabric.
- (ii) to reduce the cost.

Blending can be done at two stages of fabric construction :

- a) **Yarn stage** — When yarn is made from the fibre, two different fibres are blended either physically — by twisting two yarn or chemically — by dissolving the two to form a solution and which then converted into a yarn.
- b) **Weaving stage** — Yarns from two different groups are used for warp and weft during weaving to produce a blended fabric.

INTEXT QUESTIONS 26.6

1. Complete the following chart giving one example of each.

**Synthetic polymer
(Manufacture)**



2. Two requirements for melt spinning are

- (i)
- (ii)

3. Two requirements of dry spinning are

- (i)
- (ii)

4. Two requirements of wet spinning are

- (i)
- (ii)

5. Complete the following sentences

- a) Thermoplastic means _____.
- b) Heat setting of synthetics means _____.
- c) Absorbency of synthetics is _____.
- d) Pilling of synthetics causes _____.
- e) Dyeing of synthetics is _____.
- f) Fibre has _____ for grease hence it _____.
- g) Synthetics are not affected by _____.
- h) Synthetics do not _____ or _____ when wet.
- i) Blend means _____.

5. Give four examples of blended fabrics.

- i)
- ii)
- iii)
- iv)

7. Name two stages at which blending is done

- i)
- ii)

26.8 COMPARISON OF PROPERTIES/CHARACTERISTICS

Characteristics	Nylon	Polyster	Acrylic
* Durning Characteristics	- burns slowly with melting inflame.	- same as nylon	- in flame burns with melting, continues after flame is removed.
* Resiliency	- excellent	- excellent	- good
* Resistance to damage from :			
- fungi	- excellent	- excellent	- excellent
- insects	- excellent	- excellent	- excellent
- sunlight	- direct sunlight	- direct sunlight	- excellent
- acids	- strong acid good damaging	- good	- no damage caused
- alkalies	- good, no damage	- good to weak alkali	- good, no damage caused.
- bleaches	- good, no damage	- good, no damage caused	

26.9 SPECIAL FABRICS

A. Knitted Fabrics

Knitted fabrics need special care while laundering because of

(i) dimensional stability (ii) pilling and (iii) snagging.

Let us see what these means and what is implied in its care?

Knits are popular apparels because they permit fabrics to move with the body. But this also means that they are low in dimensional stability. They shrink, stretch and distort in shape. Quite often these are given shrink control treatment of *heat setting* as in case of synthetics. These help in dimensional stability and you would know about it from the table. Knits maintain their shape best if they are dried flat. Synthetic knits behave better as against the pure wool knits.

Snagging means forming of holes in knitted fabric because a thread in the knit has broken. Unless it is pulled back and repaired it can cause a lot of damage to the fabric / apparel.

Fabrics are also subjected to abrasions (friction) during use/laundry. The short fibre ends on the surface of the fabric tend to form small balls due to friction. This is called **pilling**. When fabrics are of weak fibres, these balls break off the fabric but in case of synthetics these remain on the fabric surface and make it look ugly.

If the yarn is *textured* the problem of pilling will decrease. Texturing means creating a design on the fabric and thus making the surface uneven, eg. embossing.

Heat Setting is given to synthetics giving them dimensional stability. Fabrics which are heat set do not *shrink*.

Mothproofing

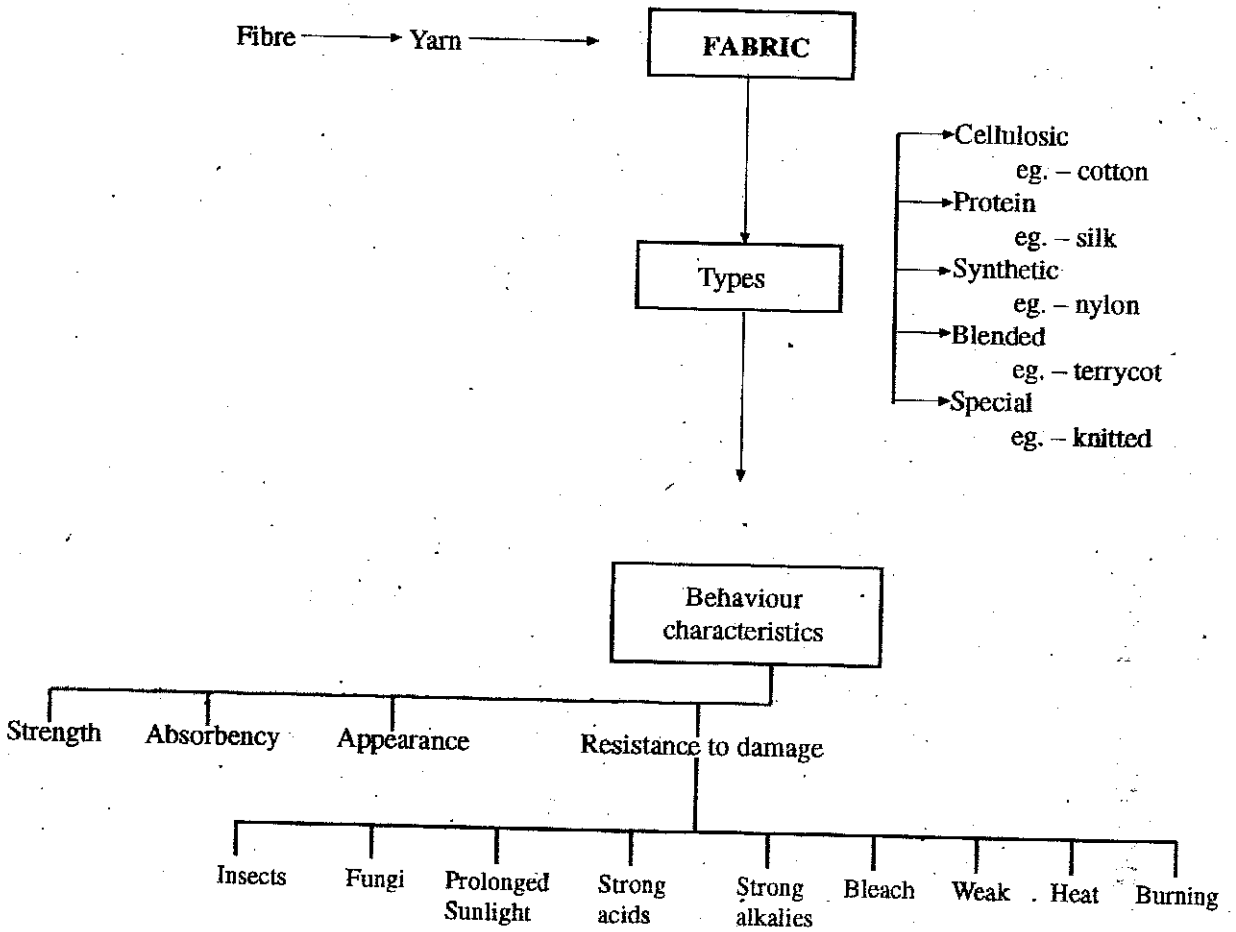
Fibres like wool, rayon and silk which are highly susceptible to the attack of insects are given *mothproofing* i.e. a treatment which protects the fabric from these insects. This finish is applied during dry cleaning. The finish is a substance — an insecticide that is poisonous to the moth or its larvae. Such a finish has to be renewed everytime or frequently while dry cleaning the garment.

The permanent mothproofing is done at the time of manufacture of the fabric. The chemical is used on the fabric which makes it unpalatable for the moth and larvae which attack the fabric.

26.10 BEHAVIOURAL CHARACTERISTICS OF DIFFERENT FIBRES

Fibre/ Characteristics	Strength	Appearance	Absorbency	Resistance to damage from									
				Insects	Fungi	Prolonged sunlight	Strong acids	Strong alkalies	Bleaches	Weak acid	Heat	Burning	
Cotton	Strong. Stronger when wet	Dull looking	Good, also dries quickly	Poor to Silverfish	Poor	Causes loss of strength	Poor resistance	Excellent resistance	No damage	No damage	Heat does not damage. Too hot iron scorches.	Burns & gives out odour like burning paper.	
Rayon	Weak. Weaker when wet	Shiny & smooth	More absorbant than cotton. Shrinks when wet. Needs ironing to open up. Loose weave shrinks more.	Poor to Silverfish	Good	Damages	Harmful. Dissolve	Poor		Resistance to cold dilute	Ironed at lower temp. High temp. melts fibre.	Burns like cotton. Paper smell on burning. No melting. Soft gray ash.	
Wool		Very absorbant. Does not feel wet. Gives up moisture slowly.	When hung in damp place it will crease. Shrink with every subsequent wash.	Damaged by insects	Yellowing effect.	Mild detergents. Wash in cold water. Minimum laundering.	Damaging	Chlorine bleaches harmful. Peroxide is not harmful.	Acids do not harm			Burns when flame is sh wn. Remove flame & it extinguishes.	
Silk	Strongest of natural fibres.	Off white High luster. lustrous to look at.	Good absorbency, more difficult to dye than wool, does not stretch or shrink.	Mildew	No problem.	Perspration damages.		Sensitive to alkalies and acids.	Chlorine bleach harmful use peroxide.		Damaged with dry iron.	Burns when in direct flame.	
Nylon	Strong, light weight Shiny lustre.	Not absorbant, affinity for oil borne stains stains which penetrate into the fabric.	Scavage colour and dirt, does not shrink.	No effect.	No effect.	No effect.	Damaged on effect of alkali.	No effect	No effect	No effect	Sensitive to hot iron. Use warm iron.	Burns slowly with melting in flames. Self extinguishing.	
Polysters	Strong fibre. Smooth & slippery	Low does not shrink unless at high temperature.	No effect	No effect	No effect	Damaging	No effect	No effect	No effect	No effect	Do not need ironing.	Shrink from flame melts leaving hard residue. Pungent odour.	

26.11 WHAT YOU HAVE LEARNT



26.12 ANSWERS TO INTEXT QUESTION

26.1 (1) C (2) A (3) D (4) B

(5) B (6) A (7) D (8) B (9) C

26.2 (1) A (2) A (3) A (4) B

(5) B (6) A (7) A

26.3(A) (i) A (ii) A (iii) Shrinks, Ironed

(iv) Sunlight (v) High temperature

(vi) C (B) i) Harmful ii) Wrinkle resistant

26.4(A) (1) A (2) C (3) B (4) C

(B) (1) absorbant, moisture (2) shrink (3) flame is held to the fabric

(4) flame is removed. (5) damage the fabric (6) progressive (7) damages wool

26.5(A) (1) C (2) C (3) A (4) B

(B) (a) harmful to silk (b) mildew (c) vinegar (d) weighting (e) starch

26.6 1. melting, dissovling, dry spinning, wet spinning

2. (i) melted polymer chips (ii) cool air current

3. (i) solvent (ii) circulating current of hot gases

4. (i) dissolved liquid. (ii) liquid bath

5. (a) sensitive to heat (b) treated with heat after spinning

to set them into permanent shape (c) poor

(d) wearing away of tangled ends. (e) difficult

(f) affinity, difficult to remove grease stains (g) mildew or insects

(h) stretch or shrink (i) mixing of two fibres

6. terrycot, terrycot

7. (i) yarn stage (ii) weaving stage.