CHAPTER : 22

TEXTILE FINISHINGS

The fabric requirements of by humans and the research on fabric science have revolutionized the industry of textiles. Gray goods, or fabrics that are in a "gray" or "loom" state, are woven fabrics that have not yet gone through the finishing processes. They have not yet been dyed and have the natural color of the fiber. Since ancient times man has undertaken the activity of textile finishing for the fulfillment of following objectives–

1. To increase the external beauty
2. To increase the quality of fabric
3. To increase diversity of fabrics
4. To increase usefulness and purpose of fabric
5. To increase service related qualities and durability
6. To make fabric exemplary and artificial
7. To make storage of clothes easy
8. To make clothes heavy and stiff
9. To make low quality clothes look attractive

Factors affecting Finishing

Researchers have made inbened methods for finishing and refinement. Effect of finishing on cloth depends upon the nature and purpose of cloth. Use of finishing depends upon following elements-

1. **Nature of fibers –** cloth usefulness depends upon physical and chemical properties of fibers, on this basis different processes can be used for giving finishing to texlets depending on our needs.
2. **Methods of weaving -** Finishing that given to cloth depends upon the various methods of weaving of cloth. Any type of finishing of can be given to the cloth which is weaved with same magnification but finishing cloths made with complex and diverse tenants is also a complex process.

Aesthetic attraction and fashion has revolutionized the textile finishing industry. This industry has gradually expanded. Everyday some new modified finishing method is seen in the market.

Textile finishing can be divided into 3 groups for the purpose of fulfilling the objectives:

(1) Mechanical,
(2) Chemical,
(3) Special finishing

Special finishing– Finishing done for special purposes comes under this group. Finishing for making fabric water resistant, fire resistant, insect-repellent, etc. fall sunder this category.

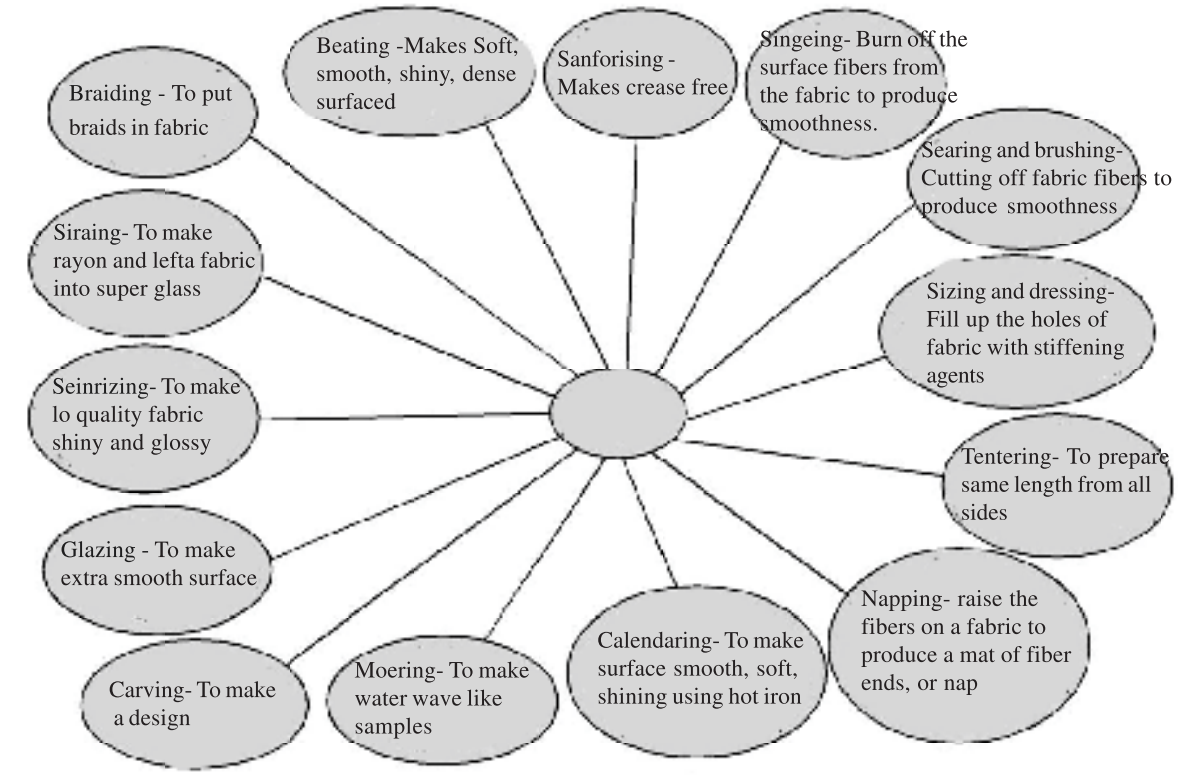
Textile finishing on can be grouped on the basis of usefulness and stability of medium:

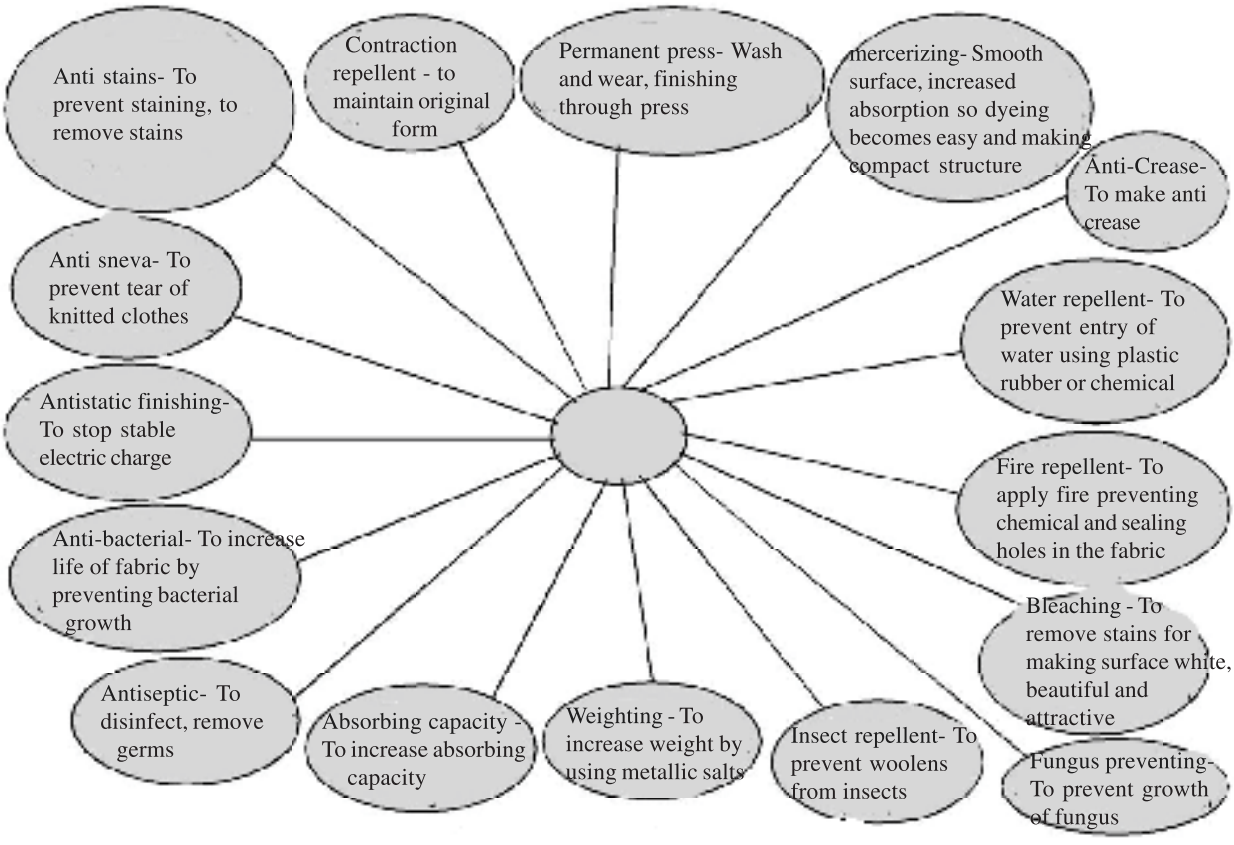
1. Mechanical (figure : 22.1)
2. Chemical (figure : 22.2)

1. **Beating–** Weaved cloth is stiff, has rough

surface and has some holes. To make such a cloth smooth and shiny, it is beaten with a wooden or iron hammer. This activity fills the holes and flattens the threads and makes the structure of fabric dense and compact.

2. **Singeing**– Singeing is designed to burn off the surface fibers from the fabric to produce smoothness. The fabric passes over brushes to raise the fibers, and then passes over a plate heated by gas flames.
3. **Scouring**– this is a temporary finishing. Once the fabric is washed it gets removed. To fill up the holes in the cloth and to make it stiff wax, starch, gum, gelatin, magnesium sulfate, magnesium chloride is used and to make it shiny wax, paraffin, etc. is used. To make the fabric stringent, fabric is passed through a roll dipped in the stiffening agent and the agent sticks on both the sides of fabric making the fabric stiff.
4. **Tentering**: Tentering is a mechanical finish where the fabric is held horizontally by each selvedge between pins. There is a tenter frame which moves faster than the speed with which the chains holding the fabric are moving. This process straightens the fabric which involves many finishing processes like mercerizing, resin finishing and drying.
5. **Calendaring (Pressing)**: Calendaring is also called pressing done on cotton, wool, and silk as well as rayons. It is a mechanical process where the fabric is fed between flat, heated plates and pressed under heat and pressure. As for wool the fabric is fed between needle boards, which help retain the pile finish. Calendering must be renewed after each laundering or cleaning.
6. **Moering**– On the surface of cloth, samples similar to stripes of water are made, for this purpose moering machine has three types of rollers installed. On the top most rollers, cloth is wound. Then cloth is passed through first and then second roller. In comparison to first roller, speed of second roller is more. Due to which stripes of water are made on the surface of cloth. After that minute and fine lines are drawn that shines in light.
7. **Mercerization**: Mercerization is a chemical finish mostly done on cotton fabrics. The fabric is immersed in 16-27 percent of sodium hydroxide and fed between rollers for a specific period of time. Then it is passed on a tentering frame to have specified dimensions. At last it is washed and dried. This process causes the fabric to have more luster, improved dying characteristic and strength.
8. **Anti-Shrinking Finishing**- This finishing is given to prevent the shrinking of the cloth. This finishing is given after washing the cloth that is obtained from loom. For this cloth is immersed in warm water and then in cold water, either using steam or chemicals fabric is given a definite shape. After this process the fabric does not shrink. 'Pre-shrink' label is put on such clothes.
9. **Anti-crease finishing**– Due to lack of flexibility and resilience in cotton, linen fabrics easily get wrinkled, to prevent this they are given anti-wrinkle finishing. For this finishing, chemical rolls are dipped in phenol formaldehyde or urea formaldehyde and they are used on clothes to make them flexible, this way the fabric gets flexibility and thus becomes wrinkle free.
10. **Water repellent**– All the fabrics to be used in rainy season are made water repellent so that water does not enter the fabric. For this very


Beating -Makes Soft, smooth, shiny, dense surfaced
Sanforising - Makes crease free
Singeing- Burn off the surface fibers from the fabric to produce smoothness.
Braiding - To put braids in fabric
Searing and brushing- Cutting off fabric fibers to produce smoothness
Siraing- To make rayon and lefta fabric into super glass
Sizing and dressing- Fill up the holes of fabric with stiffening agents
Seinrizing- To make lo quality fabric shiny and glossy
Tentering- To prepare same length from all sides
Glazing - To make extra smooth surface
Napping- raise the fibers on a fabric to produce a mat of fiber ends, or nap
Carving- To make a design
Moering- To make water wave like samples
Calendaring- To make surface smooth, soft, shining using hot iron


Anti stains- To prevent staining, to remove stains
Contraction repellent - to maintain original form
Permanent press- Wash and wear, finishing through press
mercerizing- Smooth surface, increased absorption so dyeing becomes easy and making compact structure
Anti-Crease- To make anti crease
Anti sneva- To prevent tear of knitted clothes
Water repellent- To prevent entry of water using plastic rubber or chemical
Antistatic finishing- To stop stable electric charge
Fire repellent- To apply fire preventing chemical and sealing holes in the fabric
Anti-bacterial- To increase life of fabric by preventing bacterial growth
Bleaching - To remove stains for making surface white, beautiful and attractive
Antiseptic- To disinfect, remove germs
Absorbing capacity - To increase absorbing capacity
Weighting - To increase weight by using metallic salts
Insect repellent- To prevent woolens from insects
Fungus preventing- To prevent growth of fungus

purpose a rubber or plastic made chemical sheet is applied on the fabric. This chemical covers all the holes in the fabric so that water slips from surface. But this type of cloth is not good for health. Nowadays good quality of water repellent fabrics is available in the market which is also good for health.

11. **Fire – preventing finishing**– For this type of finishing, a thick layer of ammonia sulfate is applied on a simple cloth so that the threads of cloth get completely covered. The threads are completely concealed with fire preventing material and thus cloth does not catch fire. This is useful for firemen.
12. **Prevention from insects**– Woolen, silk and other precious fabrics are protected from insects by applying a fluoride solution on the fabrics. This fluoride is poison for the insects and the clothes remain protected.
13. **Prevention from fungus**– Clothes stored in sealed and moist areas develop fungus and there appear black patches on the fabric. To protect the fabric from fungus magnesium fluoride, calcium chloride or zinc chloride, formaldehyde, turpentine are used.

Thus for different purposes different types of finishing can be done and the fabric can be refined.

IMPORTANT POINTS:

1. Gray goods are fabrics obtained from looms.
2. Finishing om textile means performing various actions on fibers, threads and fabric to make it useful and purposeful.
3. Finishing done using mechanical means is called mechanical finishing. Finishing done using chemicals is called chemical finishing.
4. Textile finishing depends on nature of fibers and method of weaving.

EXERCISE:

1. Choose the correct option:

(i) Fabric prepared from loom is

(a) Gray goods (b) coarse fabric

(c) refined fabric (d) smooth fabric

(ii) Example of mechanical finishing

(a) Sizing

(b) mercerizing

(c) Fire-preventing finishing

(d) insect repellent

(iii) Finishing is done on

(a) Fabric (b) Fiber

(c) Both the above (d) Thread

(iv) Example of chemical finishing

(a) tentering (b) beating

(c) Napping (d) fungus repellent

2. Fill in the blanks:

(i) Textile finishing is done on the basis of today's _____-

(ii) Mechanical finishing is done using _____

(iii) Chemical finishing is done using _____

(iv) In mercerizing _____ chemical is used.

(v) In moering finishing samples like _____ are made on fabric surface.

3. Write the objectives of finishing on textils.
4. Write the meaning of textile finishing and explain mechanical and chemical finishing with examples.
5. Write short notes on:

(i) Stiffening

(ii) Anti-crease finishing

(iii) Water repellent finishing

ANSWERS:

1. (i) a (ii) a (iii) a (iv) d