

Mechanical Finish Vs Chemical Finish



Before a fabric is shipped to a client, the product is passed through a “finishing process”. A finishing process is simply a value adding step where the properties of the fabric is altered using various treatments either by using a chemical or a mechanical process. This additional treatment varies depending on the results required by the clients. It is mostly divided into two. Mechanical Finish and Chemical Finish. Lets understand both these type of finishing in depth.

What is Mechanical Finishing Process?

Mechanical finishing is the process that alters the hand feel, appearance, durability, and performance of textile. The key feature of mechanical finishing methods are that it used manual methods to alter the fabric’s properties. Depending on a variety of factors like fabric material used, type of dye and dyeing method, the mechanical finishing method also changes. This ensures that the finishing process is efficient.

What are the types of Mechanical Finishing?

Like we discussed above, we are taking into consideration the fabric properties, type and the desired end result before considering the type of mechanical finish.

At Dinesh Exports, we manufacture a wide range of fabric using a wide range of mechanical finishing methods. Contact us for more details.

1. Calendaring Finish



When a fabric is wet processed and dried, it will be in its least lustrous state. The surface will be rough due to the presence of highly crimped and wavy threads. In order to solve this problem, the fabric is passed in between two rollers or bawls of a machine called as a 'Calendar'. Hence the process is called as calendaring.

We can compare the calendaring process with calendaring as it smooths out the fabric. Benefits of calendaring process are:

- It increases the luster of the fabric
- It makes the fabric more compact
- Creates a soft and handy feel on the surface
- Changes the appearance of the fabric

What are the types of calendars?

- A. Ordinary calendar: An ordinary calendar is a series of hard and soft rollers. The fabric is passed in between these rollers. Hard rollers made of polished metal, while the soft rollers are made out of compresses wood, paper or cotton.
- B. Friction calendar: In order to achieve a higher luster, gloss, or greater closing up of the fabric, this type of calendaring is used. Here, one roller

will rotate faster than the other. It will be heated and polished. This method is mainly used for finishing lining, shirting, and printed clothes.

- C. Embossing calendar: Fines lines are embossed on the fabric using this method. It will be a temporary effect that increases the luster and smoothness of the fabric.
- D. Swizzing calendar: This is an ordinary calendaring process with seven rollers that are run at the same peripheral speed.
- E. Chasing calendar: In order to get a linen like appearance on the fabric, this type of calendaring process is used. There will be five rollers, all running at the same speed.

2. Raising:

The layers of fibers are lifted from the surface of the fabric in order to form a pile. This process is known as raising. It makes the fabric exceptionally soft. The pile enables large formation of air causing the fabrics to become warm and soft.

Cotton fabrics are mostly raised. But in recent times, even manmade fibers are also put under this process. The raising process is done in a wet state making it easier for implementing.

3. Setting & Heat-setting



During processes like spinning or weaving, the chances of fabric undergoing distortions in fabric structure, designs and also uneven shrinkage is higher. In order to avoid this, setting is implemented. Setting stabilizes the woven structure of the fabric in a regular and permanent manner by relaxing the stresses. The

agencies used for bringing this effect are heat, moisture, and pressure. This is a chemical free process.

4. Sanforising

Sanforization is a type of treatment process invented by Sanford Lockwood Cluett in 1930. This process is mainly applied to cotton fabrics and textiles made from natural or chemical fibers.

During sanforization process, the fabric is stretched and shrunk in order to fix both the length and width before cutting and production. This process helps in reducing the shrinkage which would otherwise occur after washing.

5. Napping

Napping is a process in which the surface of the cloth is raised, cut even and smoothed by a napping machine. This machine known as planetary napper.

The machine creates pile on the fabric which makes it exceptionally soft and comfortable. The nap is generally brushed in one direction of the fabric through which light can reflect in a particular way. Most commonly used fabrics are velvet fabric and corduroy fabric. At Dinesh Exports, we have a wide range of corduroy fabrics. Reach out for samples.

6. Shearing

Shearing is a type of mechanical process in which the fiber ends are cut off. This process removes the random lengths of fiber and achieve a smooth and levelled pile. Moreover, fabrics that go through the napping process are usually sheared.

7. Sanding

Sanding is a process that makes the fabric surface resemble suede leather. The fabric surface is subjected to one or more rolls of abrasive material moving at a much higher surface speed than the fabric.

8. Compaction



Compaction is a mechanical finish in which the length of the fabric is reduced by compressing the structure of the fabric. The fabric is more likely to shrink because of its structure. Fabric structures that have more open style have greater propensity to shrink. Compaction helps to avoid this.

What is Chemical Finishing Process?

Chemical finishing processes involved the usage of chemicals to change the properties of a fabric to get desired end results. The underlying selection criteria for selecting the type of chemical finish to be implemented depends on the type of fiber, its properties and its application.

In general, various chemical finishing processes takes place after dyeing the fabric but also before the fabric is converted into a garment. Chemical finishing is a highly versatile and complex procedure. Depending on various factors, chemical finishing is divided as below:

1. Wrinkle free finish

This type of chemical finish is applied to eliminate wrinkles or creases on the fabric. It is further divided into two.

- A. Pre-cure process: For fabrics that do not require pleats and are to remain flat are generally applied with this type of chemical finishing. All the steps (pad dry and cure) are performed at the mill level.

- B. Post-cure process: In this process, the uniform distribution of chemicals is assured, since sensitization is done at the mill level in the fabric form.

Anti-crease finish, wash-and-wear finishes, durable press finishes are further development of wash-and-wear finishes.

2. Parchmentsing

Fabrics that are made up of cellulose fiber (like cotton) are treated with concentrated sulphuric acid to get a unique organdie finish. This chemical process is known as parchmentsing process.



A thin closely woven cotton fabric is transferred into a beautiful transparent fabric with slight stiffness, the effect is permanent. Action of sulphuric acid is characterized by three different effects depending upon its strength.

3. Anti soil finish

Anti soil finish is a type of chemical finish that minimizes the interaction between soil and the textile material (substrate). Soil can be water soluble organic or inorganic soil, water soluble inorganic cement, water soluble organic, non-polar type soil (pigments), water soluble organic, polar soil (fatty acids in the form of sweat, proteins-egg yellow). This increases the durability and add efficiency to

the fabric. It prevents the fabric from getting dirty easily and increasing their stain removal factor. It also helps in creating fabrics that remain clean for longer periods of time.

4. Flame retardants

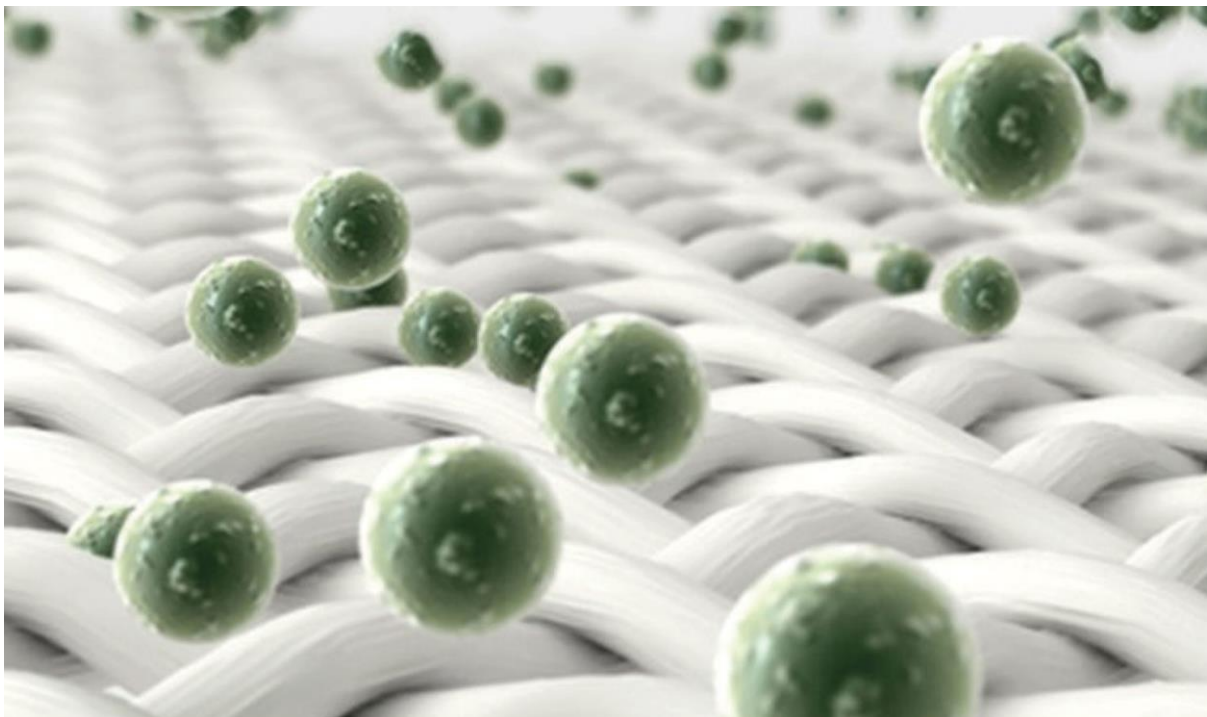
Flame retardants are a type of chemical finishing process which is done on fabrics that are non-flammable. Phosphor amide is one of the most common things which is used to make flame retardants and is highly suitable for the purpose. In recent reviews, the more important durable flame retardants used as additives or co-reactants in fibers or in finishes for fibers were summarized.

5. Fluoro-chemicals as textile finishing agents

Fluoro-chemicals helps in propelling water, oil, stain and dirt from the textile materials. When a drop of oil is added on a textile surface it forms a contact angle with it.

- If the contact angle is higher than 90°, there is drop formation and hardly any wetting of the surface.
- If the contact angle is less than 90°, there is wetting of the surface.
- If the angle is 0°, there is complete wetting of the surface, immediately.

6. Deodorant and antimicrobial finishes



Microorganisms are a dangerous part of our everyday lives. Mold, fungus, mildew, yeast and bacteria can cause various diseases to us. But with the help

of identifying the microorganism and applying the right antimicrobial finishing, it can avoid harmful effects from them. Depending on the client requirements, various chemical finishes are applied. When implemented safely, it increases the durability and effectiveness of the fabric.