

Textile processing

Textile processing is one of the important industries related with textile manufacturing operations. This industry has a long history that begins with "Indigo dyeing" a natural color, derived from a plant.

Once the process of coloring textiles was considered as an art. According to ones creativity and imagination on those days numerous techniques were evolved in coloring different materials such as cotton, bamboo, jute, earthen-ware and even mortar walls. Slowly this technique was evolved in to a science and so many artificial coloring matters called 'dyestuffs' had started coming in to existence.

This evolution of coloring matters in to synthetic dyestuff and the application techniques on various textile materials are all put together is called 'Textile Processing'.

Textile processing is a general term that covers right from singeing (protruding fibre removal) to finishing, printing of fabric.

1) Singeing is the process of removing the pills and protruding fibers of the fabric coming from weaving. This operation may either be done as the beginning of process or as an end of finishing operation.

2) Desizing is the second operation after singeing. Desizing of fabric is essential to remove the sizing materials added during warping to strengthen the warp yarns. This size if present during subsequent processing will affect the quality of look and finish. There are many ways to remove the size from the fabric. A few methods are as below.

- 1) Acid Desizing - this is an old process of destroying the starch and other size materials in th presence of acid at elevated temperatures.
- 2) Oxidative desizing method - desizing with the help of an oxidising agent such as Hydrogen peroxide.
- 3) Enzymatic desizing method - this is a bio degradation method that destroys starch and other sizing materials in to soluble form that will be washed off during subsequesnt washes.

3) Bleaching Process: Bleaching is a process to make the fabric or yarn look brighter and whiter. This is achieved by oxidizing or reducing the coloring matters in to colorless form. Mostly widely used textile bleaching method is Hydrogen Peroxide bleaching. This is carried out in an alkaline bath at about 80 to 85°C at a pH of 11.

4) Dyeing Process : Dyeing is yet another sub branch of processing with so many complicate process. According to the application technique and the type of dyestuff used the process of dyeing is categorised.

- 1) Direct Dyeing is a process of applying coloring matter directly on fiber without any additive. This is a simple process but the fastness paramenters of the dyed material is very poor. So direct dyetuff application is reduced to very minimum and applied to materials where the it goes not require anu washing during usage. Floor Mat, Foot mat, etc.
- 2) Naphthol dyes are a group of dyestuff used to create fast and bright colours. But the application process is a very complicated one. But still due to its cheapness in producing dark and bright shades keeps this class of dye stuff in the market.
- 3) Vat dyes are a class of dye stuff applied from small vats or truffs. This class of dye stuff yields very fast colours to washing, light and rubbing. Mostly used for

producing dull but all difficult shades where fastness is the prime requirement. Example - Suitings, Stripped shirtings, awning materials and defence clothing.

4) Reactive dyestuffs are the bright and fast shade producing dyestuffs. The application is also very simple and a lot of research and development is going on in this class. But the pollution load created due to this dyeing is very harmful to all water sources.

4) Finishing is the final process to impart the required end use finishes to the fabric. For example, crease resistant finish is imparted to make the fabric wrinkle free, fire proof finish is for fire resistance, anti microbial finish for odour and micro organism resist finished and so on.

5) Printing is a science as well as an art. In those days the printing was made using so many wooden dyes and wax printing. But now the science and technology has developed so that via digital printing any photograph can be printed straightaway on the fabric.