

FACULTY-DIP.ENGINEERING

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CH-1 BLEACHING OF FABRICS

- ▶ 1.1 Introduction of Bleaches
- ▶ 1.2 Classification of Bleaching agent

Bleaching

“To Bleach some thing is to remove or lighten its color.”

Bleaching Process

- ▶ Bleaches are chemicals That they are capable of whitening fabrics and removing stains by destroying coloring matter.

Objectives

1. To whiten the goods.
2. Help the goods to absorb more dyes and chemicals.
3. To make the goods more suitable for dyeing and printing.
4. To be followed with adding optical brightening agent process.
5. For the perpose of stain removal.

Advantages

1. It cloth is to be finished white or is to be given surface ornamentation all natural color must be removed by bleaching
2. This is also necessary if discoloration or stain have occurred during the previous manufacturing process.
3. They also disinfect and deodorize.

Disadvantages

- 1.All bleaching Processes reduce the strength of the fiber.
- 2.If durability is more important than appearance, the consumer should select gray goods rather than bleached material.

Classification of bleaching agents

- 1.Sunlight With moisture,air and grass
- 2.Sodium Perborate
- 3.Sodium Hypochlorite
- 4.Hydrogen Peroxide
- 5.Potassium Permanganate

- 1.Sodium Hydrosulphite
2. Sodium Bisulphite

Oxidising bleaches

Reducing bleaches

CH-2 FINISHES OF FABRICS

2.1 Definition of Finishes

2.2 Uses of Finishes

2.3 Process of Finishes

2.4 Classification of finishes on the basis of Textile Processing

2.1 DEFINITION OF FINISHES

In textile manufacturing, finishing refers to any process performed on yarn or fabric after weaving or knitting to improve the look, performance, or "hand" (feel) of the finished textile or clothing.

WHAT IS FINISHING ?

- A finish is anything that is done to a fabric after weaving or knitting, to
- changes its appearance, hand and performance.
- When a finish is applied, say on cotton, it might become more shiny, stronger or
- resist shrinking on washing. Similarly, other finishes may make the fabric softer or
- stiffer; water or stain resistant; coloured or designed .

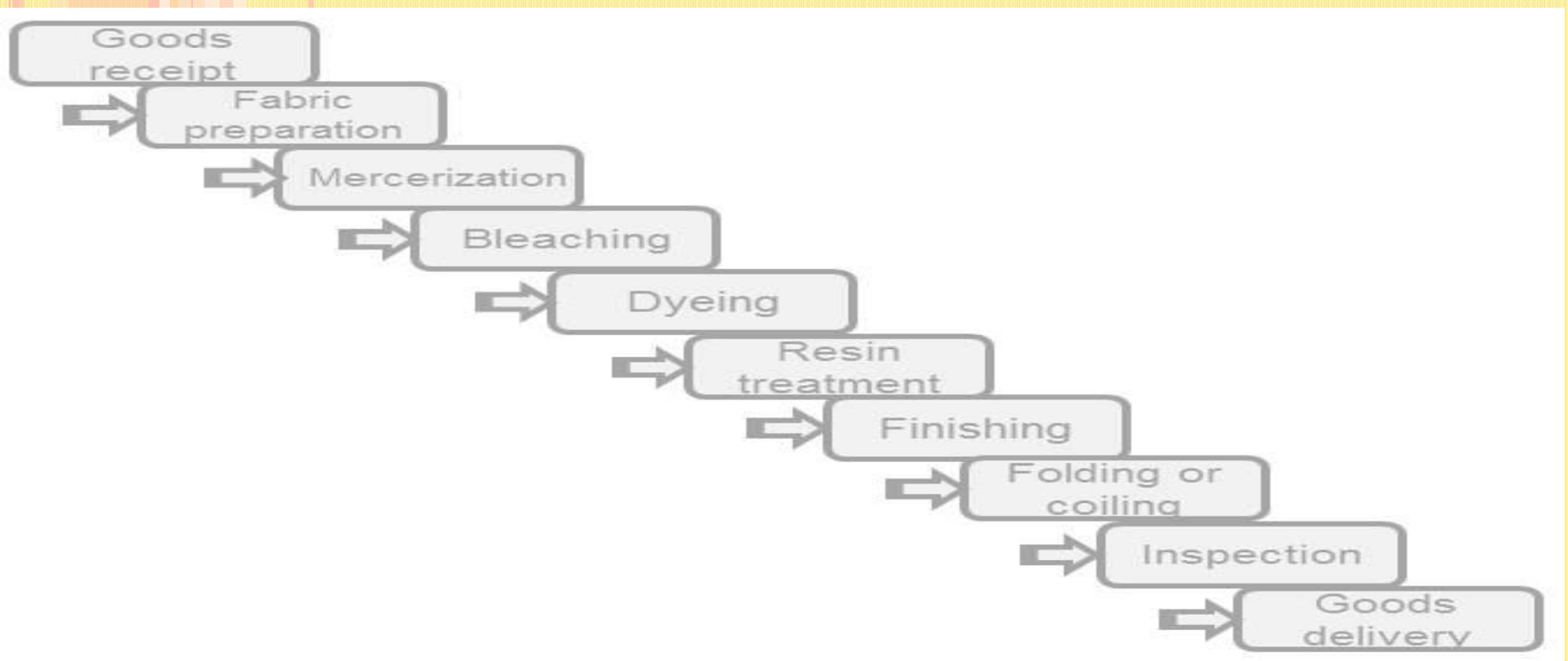
AIMS /USES OF FINISHING

1. Appearance improvement.
2. Increasing the weight of stiffness.
3. To produce imitations.
4. To improve suitability and utility.
5. Making fabric waterproof ,fire proof mildewproof.
6. To resist shrinkage.
7. Increases fabric's capacity to provide more and better service.
8. To produce variety.
To give smooth and glossy texture and an attractive appearance.
To get rid of this defect.
9. Shape retentive finishes.
10. Wash and wear finishes.
11. Wrinkle resistant finishes.
12. Permanent press.
13. Super crease.
14. Absorbency finishes.
15. Soil repellency.
16. Fabric to fabric bonding.
17. Try to regain fabric's original size.

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PROCESS OF FINISHES

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The whole cycle of finishing consists of mechanical and chemical processes, which are used depending on the kinds and end uses of the fabric.

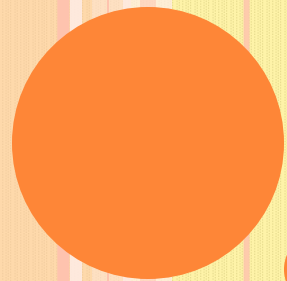
CLASSIFICATION OF FINISHES ON THE BASIS OF TEXTILE PROCESSING

CHEMICAL

- Bleaching
- Glazing
- Dyeing
- Creping
- Waterproof
- Crease resistance
- Mercerizing
- Moth proof
- Soil and stain resistance
- Flame proof
- Mildew proof

MECHANICAL

- Cleaning
- Beetling
- Brushing
- Cireing
- Calendering
- Embossing
- Glasing
- Moireing
- Napping
- Tenterring
- Creping



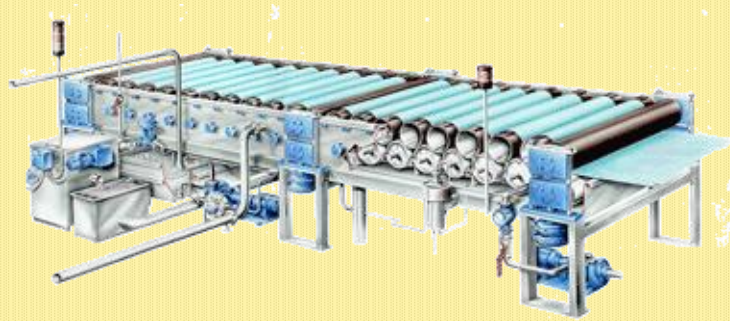
CHEMICAL

PROCESSES

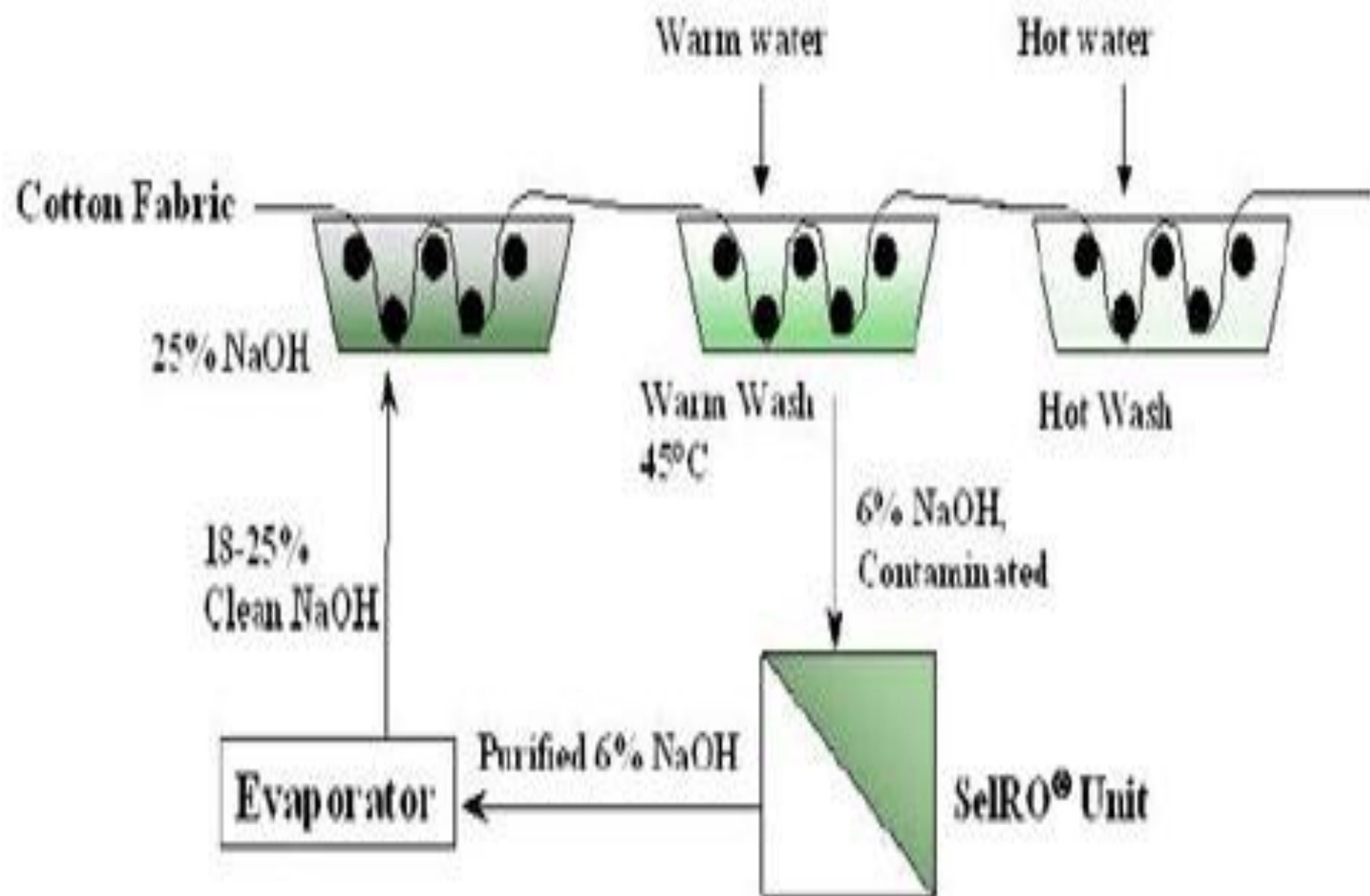
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MERCERIZING



- Mercerizing is the treatment of cotton fabric with concentrated caustic soda under fabric tension. The objective is to achieve a high degree of mercerization thereby improving:
- Luster
- Dye uptake
- Tensile strength
- Dimensional stability



BLEACHING

- 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.

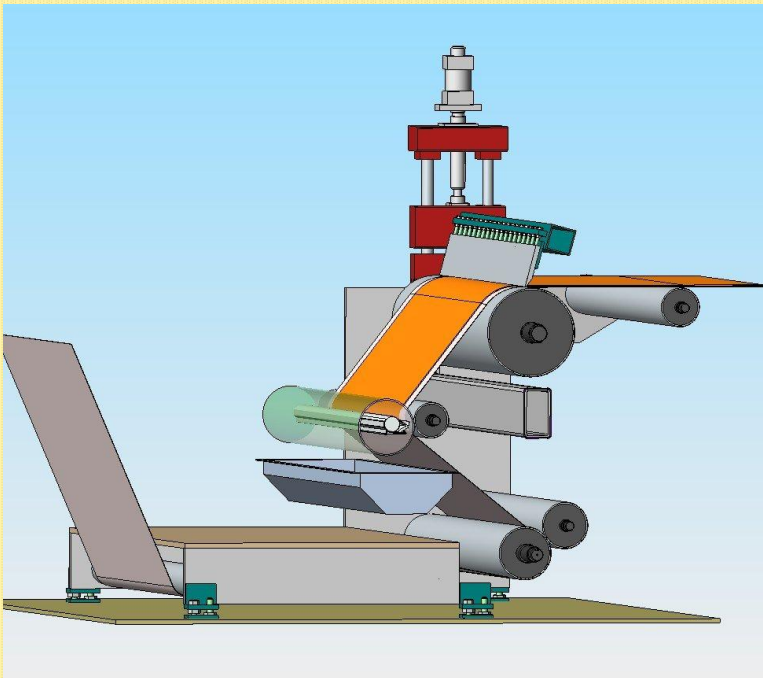


GLAZING



The Glazing process consists of treating the fabric with glue, starch, paraffin, shellac, or resin and then moving it through hot friction rollers. This process gives the fabric qualities such as luster, resistance to dust, spots and shrinkage.

DYEING



- **Dyeing** is the process of adding color to textile products like fibers, yarns, and fabrics.

CREPING



- Some of the finishing processes impart crepe or crinkled effects to the fabric. This is done through various methods. One method involves the use of engraved rollers. In another method, cotton is treated with caustic soda which is applied in the form of stripes and then the fabric is washed. The portions having soda shrinks and the remaining parts gather into small wrinkles. In yet another method, wax is used in place of caustic soda.

WATERPROOFING



- Fabrics to be used as raincoats, umbrellas, and tarpaulins have to be treated with chemicals to give them a property which makes them water resistant. The finish is called waterproofing and it is a durable finish. Water repellent finish is different from water proof finish. It means water, if showered on the fabric briefly, cannot make the fabric wet.

CREASE-RESIST FINISH



- **Crease-Resist finish** or "wash-and-wear" or "wrinkle-free" finishes are achieved by the addition of a chemical resin finish that makes the fiber take on a quality similar to that of synthetic fibers.

MOTHPROOF FINISH



- Mothproof finish is directed towards the garment fur moth the anthrrmus, attunes beetle etc, which live as textile parasites on keratin contains substances. To protect wool form attack of moth many organic and inorganic compounds have been used .

SOIL & STAIN RESISTANCE



- Soil release is the term used to describe the clean ability of fabrics by the laundering process. Soils can be defined as unwanted substances at the wrong place. Most common soils fall into one of four categories: 1. Water borne stains 2. Oil borne stains 3. Dry particulate soils and 4. Composite soils involving oil and grease adsorbed on particulate matter.

FLAME PROOF



- The finishing of fabrics with flame retardant can reduce the tendency to burn or reduce the tendency to propagate the flame. The flame-retardant may char the fuel, quench the reaction of combustion, absorb heat or emit cooling gases or replace oxygen. There are four main families of flame-retardant chemicals used in high performance woollen apparels such as aircraft, carpets and other home furnishings .

MILDEW PROOF



- Under suitable conditions micro-organisms which inhabit soil, water, and air can develop and proliferate on textile materials.. Textiles made from natural fibres are generally more susceptible to biodeterioration than are the synthetic man-made fibres. Products such as starch, protein derivatives, fats, and oils used in the finishing of textiles can also promote microbial growth.. Nevertheless, even mild surface growth can make a fabric look unattractive.. The material is attacked chemically by the action of extracellular enzymes produced by the micro-organism for the purpose of obtaining food. Therefore, some form of chemical protection is normally only required with textiles.



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MECHANICAL

PROCESSES



CLEANING



- Cleaning process is primary process to remove dirt from fabric. It is mainly done with cleaning machine. washing soda, detergents, and other cleaning agents are used with water to clean the gray fabric.

BEETLING

- Beetling is a common finishing process for linen. The yarns are flattened by the impact of wooden mallets. This hammering actually closes the weave and gives the cloth a firm, flattened, lustrous appearance. All table linen is put through this process.

BRUSHING



- **Brushing** A finishing process for knit or woven fabrics in which brushes or other abrading devices are used to raise a nap on fabrics or create a novelty surface texture.

CIREING

- The cire process may be applied to silk, rayon, or nylon woven fabrics –usually satins and taffetas –but may also be used on knitted goods.

CALENDERING



- Calendering is not a single type of finish. There are various types of calender machinery, each producing different types of finished fabrics.

The various types of calendering finishes include the following

- (a) Simple calendering**
- (b) Glazing calendering**
- (c) Embossed calendering**
- (d) Moire calendering**
- (e) Schreiner calendering**

EMBOSSING

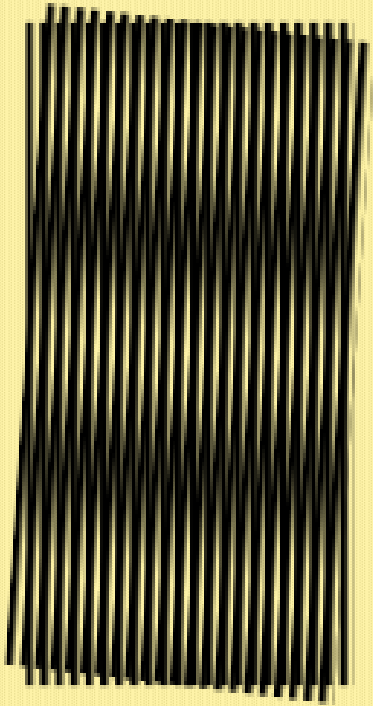


- This is different from the regular engraving or printing in which plates are pressed against the surface to create an imprint. In embossing the pressing raises the surfaces adding a unique and appealing effect to the fabric. Bleached, dyed, or printed fabrics singed with a preliminary finish and chemically unmodified fabric is used for embossing.

GLASING

- A stiff polished or glazed surface can be obtained by the application of starch, glue, mucilage, or shellac followed by friction calendering.
- The process makes a fabric resistant to dust and spots and minimizes shrinkage.

MOIREING



- Attractive ,lustrous wavy designs known as moire can be produced by a process that is essentially one of minute surface embossing or pressing of a fabric with crenellated ,or ridged ,rollers.

NAPPING

Napping is a mechanical finish in which woven or knitted fabrics are passed against rotating, bristled wire-covered brushes. This action results in fibres actually being raised from the fabric. The overall effect is a fabric with raised fibre surface.

TENTERING

- This process is applied at various stages of finishing. Usually, the fabric is wet when it is run into a tenter, drying and evening of the fabric width are the primary purposes of tentering.

CH-3 DYEING



CONTENT

3.0 Introduction and history of Dye

3.1 Types of Dye

3.2 Methods of Dyeing

3.3 Types of resist Dyeing

3.4 Tie and Dye

3.4.1

- a) Tools and Accessories for tie and dye
- b) Suitable fabrics for tie and dye
- c) Preparation of materials
- d) Methods of tying
- e) Methods of dyeing
- f) Methods of obtaining different designs

3.4.2 Batik dyeing

•WHAT IS DYEING ?



✗ Dyeing is the process of adding color to textile products like fibers, yarns, and fabrics.

Dyeing is normally done in a special solution containing dyes and particular chemical material.

HISTORY OF DYEING

the Neolithic period. The earliest surviving evidence of textile dyeing

was found at the large Neolithic settlement at Çatalhöyük in southern

Anatolia, where traces of red dyes, possible from ochre (iron oxide

✕ Archaeologists have found evidence of textile dyeing dating back to

pigments from clay), were found.



TYPES OF DYES

- ✕ Natural Dyes

- ✕ Synthetic Dyes

NATURAL DYE

- ✕ The majority of natural dyes are from plant sources – roots, berries, bark, leaves, and wood, fungi, and lichens. Textile dyeing date back to the Neolithic period. Throughout history, people have dyed their textiles using common, locally available materials. Scarce dyestuffs that produced brilliant and permanent colors such as the natural invertebrate dyes Tyrian purple and crimson kermes were highly prized luxury items in the ancient and medieval world. Plant-based dyes such as woad, indigo, saffron, and madder .



SYNTHETIC DYES

- ✗ The first human-made (synthetic) organic dye was discovered by William Henry Perkin in 1856. Many thousands of synthetic dyes have since been prepared.
- ✗ Synthetic dyes quickly replaced the traditional natural dyes. They cost less, they offered a vast range of new colors, and they imparted better properties to the dyed materials.

SYNTHETIC DYEING MACHINE



DIRECT DYES

- ✗ The first direct dye was called Congo red and was introduced in 1884. It was called a direct dye because it was the first dye to become available for colouring cellulose 'directly', without the use of a mordant. Direct dyes are applied in a boiling dyebath in the presence of salt.

DYES

✘ Advantages of Direct Dyes

- ✘ Cheap
- ✘ Simple to apply
- ✘ Wide Range of Colours
- ✘ Very Good Fastness to Light

✘ Disadvantages of Direct Dyes

- ✘ Moderate Brightness
- ✘ Poor Wet Fastness

REACTIVE DYES

- ✗ Developed in the 1950s, Reactive Dyes were the first dyes produced capable of reacting chemically with the fibre (usually cellulose) under alkaline conditions. The dye thereby becomes part of the fibres, rather than merely remaining as an independent chemical entity within the fibre. Reactive dyes are applied at relatively low temperatures, with controlled amounts of salt and alkali.

✖ Advantages of Reactive Dyes

- ✖ Simple to apply
- ✖ Wide range of Bright Colours
- ✖ Good Fastness to Light and Washing

✖ Disadvantages of Reactive Dyes

- ✖ Relatively Expensive

× Disperse Dyes

- × Disperse dyes were introduced in the 1920s to dye acetate fibres, which were otherwise undyeable, although nowadays they are mainly used for polyester fibres. They are applied at relatively high temperatures (over 100 °C)

✕ Acid Dyes

- ✕ These are most commonly used for dyeing protein fibres such as wool and silk, the term 'acid' referring to the fact that acid or an acid-producing compound is used in the dyebath.

✖ Basic Dyes

- ✖ These are used to dye polypropenonitrile (acrylic) fibres with an acidic character. The mechanism by which basic dyes are absorbed onto the acrylic fibres is believed to one of ion exchange, analogous to the mechanism, whereby the cations of acidic fibres are replaced by the dye cations.

✖ Sulphur Dyes

- ✖ These are used in cellulosic fibers to produce form. sulphur dyes are used on cellulosic fibres to produce dark colors such as black, brown, olive and green. like vat dyes they are insoluble mixtures that are present in the dye bath as leuco derivatives.

✕ Mordant Dyes

- ✕ A Dyestuff that requires the use of a mordant There are very few synthetic dyestuffs currently in use that require a separate mordant, except for some dyes for wool, where mordant dyes are still quite popular. Since chromium is almost exclusively used as the mordant on wool, chrome dye has become essentially synonymous with mordant dye.

✖ Azoic dye

- ✖ **Azoic dyeing** is a technique in which an insoluble azo dye is produced directly onto or within the fibre. This is achieved by treating a fibre with both diazoic and coupling components. With suitable adjustment of dyebath conditions the two components react to produce the required insoluble azo dye. This technique of dyeing is unique, in that the final color is controlled by the choice of the diazoic and coupling components.

✕ Vat Dyes

- ✕ A classification of dyes that are converted from a water-insoluble pigment form to a soluble leuco form (using a reducing agent), applied by immersion to fabric,).

× Optical brighteners

- × . These additives are often used to enhance the appearance of color of fabric and paper, causing a "whitening" effect, making materials look less yellow by increasing the overall amount of blue light reflected.

DYEING METHODS

✕

Colour is applied to fabric by different methods of dyeing for different types of fiber and at different stages of the textile production process. These methods include Direct dyeing; Stock dyeing; Top dyeing; Yarn dyeing; Piece dyeing; Solution pigmenting or dope dyeing; Garment dyeing etc. Of these Direct dyeing and Yarn Dyeing methods are the most popular ones.



1. STOCK DYEING



Stock dyeing is used to dye fibers. In this process, the staple fibers are packed into a vessel and then dye liquid is forced through them. Although the dye solution is pumped in large quantities, the dye may not penetrate completely into the fibers and some areas may be left without dyeing.

Woolens are usually stock dyed.

2.TOP DYEING



Top is the combed wool sliver. It is wound on perforated spools and the dye solution is circulated through it. This method results in very even dyeing.

3.BECK DYEING



It is used for dyeing long yards of fabric. The fabric is passed in rope form through the dyebath. This rope of the fabric moves over a rail onto a reel which immerses it into the dye and then draws the fabric up and forward and brings it to the front of the machine. This process is repeated many times until the desired color intensity is obtained.

JIG DYEING



It is similar to the process of beck dyeing with a slight variation. The fabric in jig dyeing is held on rollers at full width rather than in rope form as it is passed through the dyebath.

PAD DYEING



Padding is also done while holding the fabric at full width. The fabric is passed through a trough having dye in it. Then it is passed between two heavy rollers which force the dye into the cloth and squeeze out the excess dye. Then it is passed through a heat chamber for letting the dye to set. After that it is passed through washer, rinser and dryer for completing the process.

JET DYEING

Fabric is placed in a heated tube where jets of dye solution are forced through it at high pressures. The fabric too moves along the tube. The solution moves faster than the cloth while coloring it thoroughly.

SOLVENT DYEING

This is a method applied for dyeing the synthetic fibers. Dye is added to the solution before it is extruded through the spinnerets for making synthetic filaments. This gives a colorfast fiber as the pigments are used which are the fastest known colors.

PIGMENT DYEING

- ✗ A **pigment** is a material that changes the color of reflected or transmitted light as the result of wavelength-selective absorption. This is a physical process differs from fluorescence, in which a material emits light.

YARN DYEING



- ✘ Yarn dyeing is used to create interesting checks, stripes, and plaids with different-colored yarns in the weaving process. In yarn dyeing, dyestuff penetrates the fibers in the core of the yarn.
- ✘ Some methods of yarn dyeing are stock, package, and skein dyeing. Stock dyeing dyes fiber using perforated tubes. In package dyeing (Figure 11), spools of yarn are stacked on perforated rods in a rack and immersed in a tank where dye is then forced outward from the rods under pressure

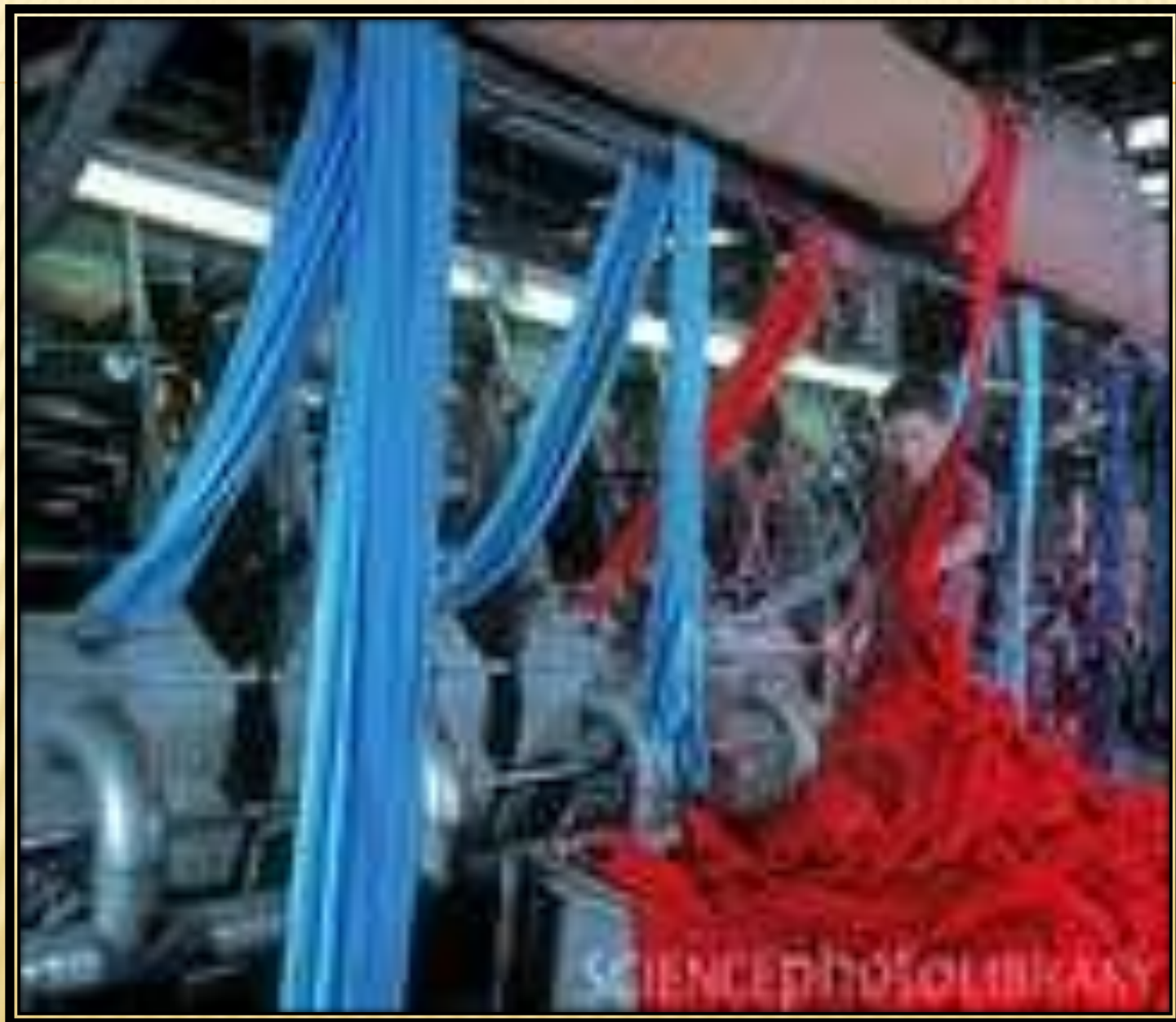
YARN DYEING



PIECE DYEING



- ✘ Most dyed fabric is piece-dyed since this method gives the manufacturer maximum inventory flexibility to meet color demands as fashion changes. In terms of overall volume, the largest amount of dyeing is performed using beck and jig equipment. This process is repeated as long as necessary to dye the material uniformly to the desired color intensity.



RESIST DYEING

RESIST DYEING



- ✕ Resist dyeing a term for a number of traditional methods of dyeing textiles with patterns. Methods are used to "resist" or prevent the dye from reaching all the cloth, thereby creating a pattern and ground. The most common forms use wax, some type of paste, or a mechanical resist that manipulates the cloth such as tying or stitching. Another form of resist involves using a chemical agent in a specific type of dye that will repel another type of dye printed over the top. The most well-known varieties today include tie-dye and batik.

TYPES OF RESIST DYEING

- ✕ 1.stitch Resist(Tye & Dye)
- ✕ 2.Wax Resist(Batik)

1.TIE DYEING

Firm knots are tied in the cloth before it is immersed in a dye. The outside of the immersed portion is dyed but the inside is not penetrated. There are various forms of Tie dyeing like Ikat Dyeing where bundles of warp and/ or weft yarns are tie dyed prior to their weaving. In Plangi Dyeing the gathered, folded or rolled fabric is usually held with stitching to form specific patterns.



2.BATIK PRINTING

- ✗ melted wax or some form of paste is applied to cloth before being dipped in dye. Wherever the wax has seeped through the fabric, the dye will not penetrate. Sometimes several colors are used, with a series of dyeing, drying and waxing steps. The wax may also be applied to another piece of cloth to make a stencil, which is then placed over the cloth, and dye applied to the assembly; this is known as **Batik printing**.



3.4 .1 TIE AND DYE

✕ TOOLS

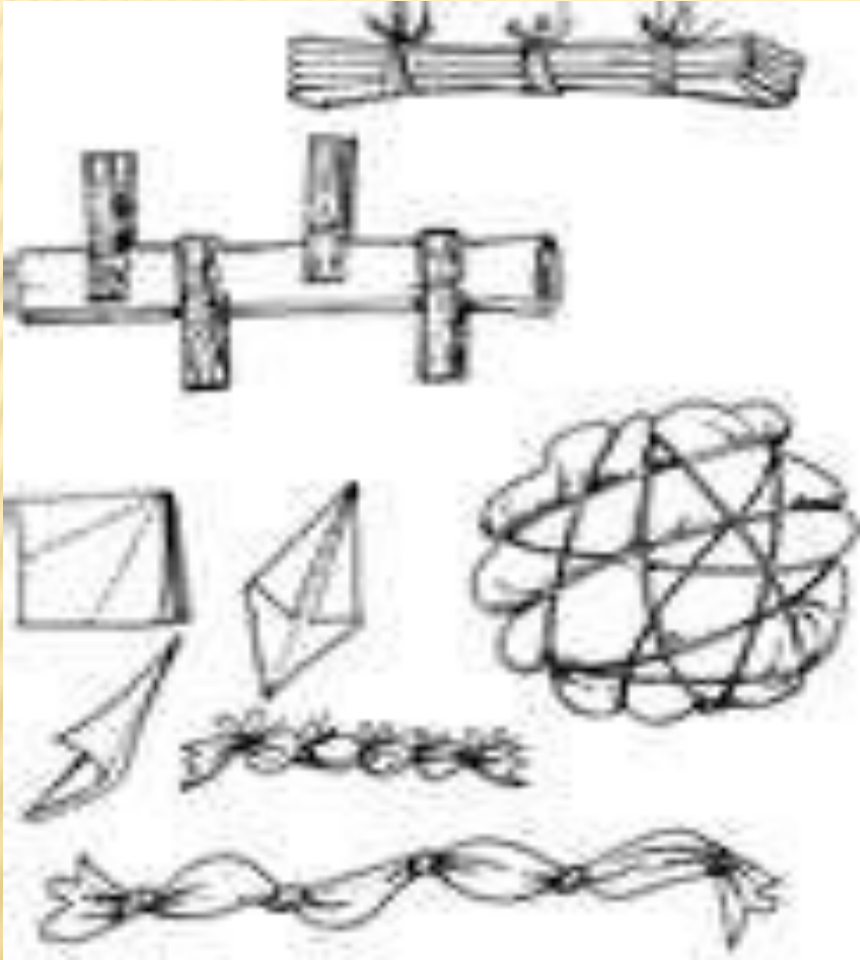


STEP 1: FOLD AND TIE YOUR GARMENT

Fold and/or tie the fabric into the desired patterns. For more defined patterns wet the shirt and squeeze or spin out excess water before folding



DIFFERENT MATHODS FOR TIEING



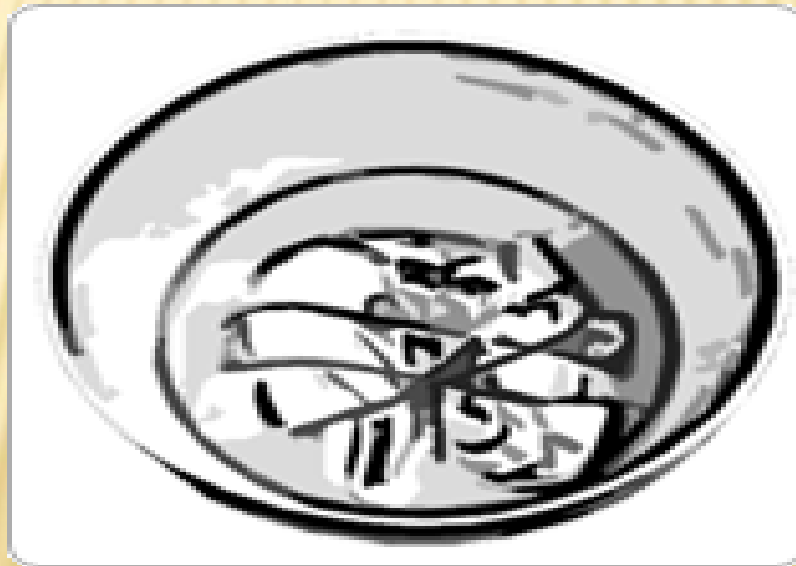


STEP 2: SOAK GARMENTS IN SODA ASH SOLUTION

Wear your dust mask & gloves! Use - 1 cup (8 oz.) of Soda Ash Fixer per gallon of warm water. A gallon will soak 10-12 adult XL tees – so way more kids tees, fewer dresses, etc.

Soak the tied garments about 5-15 minutes.

Squeeze out the garment so it is damp but not dripping. You can reuse solution until gone.



STEP 3: MIX YOUR DYES

- + Wear your dust mask & gloves! Measure urea and warm water into a container, mix it carefully.

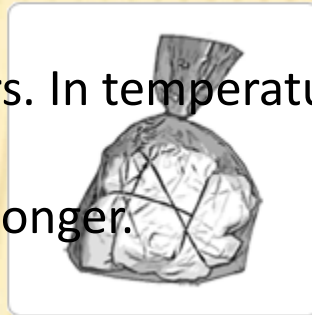
STEP 4: SQUIRT ON YOUR DYE

Apply dye with squeeze bottles, paint brushes, sponges, etc., as many colors as you want.



STEP 5: LET IT REST

Put tied fabric in a plastic bag (you want to keep it damp). Let it cure for at least 4 hours but preferably 24 hours for the brightest colors. In temperatures below 70° F, it takes longer.



STEP 6: WASH IT OUT

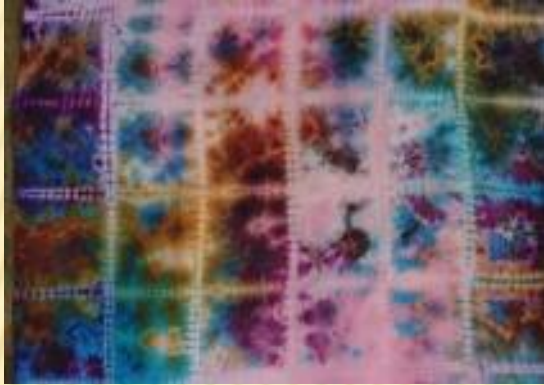
Pre-fill your washing machine with hot water and 1/4 cup Synthrapol or Professional Textile Detergent. Rinse the tie-dyes thoroughly before putting in the machine



GET RESULTS!



3.4.2 BATIK DYEING



BATIK DYEING

- ✗ **Batik** is a cloth that traditionally uses a manual wax-resist dyeing technique. Batik or fabrics with the traditional batik patterns are found in (particularly) Indonesia, Malaysia, Japan, China, Azerbaijan, India, Sri Lanka, Egypt, Nigeria, Senegal, and Singapore.

PROCESS OF BATIK

- ✘ Melted wax is applied to cloth before being dipped in dye. It is common for people to use a mixture of beeswax and paraffin wax. The beeswax will hold to the fabric and the paraffin wax will allow cracking, which is a characteristic of batik. Wherever the wax has seeped through the fabric, the dye will not penetrate. Sometimes several colours are used, with a series of dyeing, drying and waxing steps.



BATIK COPPER BLOCK STAMP TO APPLY WAX ON FABRICS



TECHNIC OF BATIK

✕ List of Equipment

- 1. Material** – Fabric should be made from natural fibres such as cotton, linen, muslin or silk. For intricate designs it is important that the fabric has a high thread count. Synthetic fibres are not suitable as they cannot hold dye sufficiently.
- 2. Frames** – These can be bought or made depending on size and adjustability. It is possible to use stretcher bars or old picture frames; however, softwood is preferred as it enables the fabric to be pinned. To reduce the risk of tears to silks and finer fabrics it is possible to use masking tape to secure the material to the frame.
- 3. Wax** – This is available in a number of forms such as blocks, flakes or grains. A beginner is advised that paraffin wax is the easiest to use, however, beeswax offers less opportunity for cracking. Specialist batik wax is a mixture of both paraffin and beeswax.

-
- 4. Electric Wax Pot** – This is the most efficient and effective way of heating and melting wax as it is thermostatically controlled.
 - 5. Brushes** – Varied sizes of cheap oil brushes are advised for use with wax. Stiff bristles prove beneficial when pushing the wax into the surface of the material. Brushes made from natural or synthetic fibres are also required in the dying process. It is important to remember that after use the brushes containing wax cannot be reused for paint or dye.
 - 6. A Dye Bath** – Any suitable container which will allow the batik to be kept flat when submerged can be used.
 - 7. Cold Water Dyes** – A range of coloured dyes in powder form and appropriate fixing agent recommended by the products manufacturer.

A STEP BY STEP GUIDE TO BATIK

- ✘ Preparing the fabric and the frame
- ✘ 1.First wash the selected material to remove any remaining size (do not boil silk).
- ✘ 2.When dry cut the material to your preferred size leaving 5 – 10 cm for overlapping on the frame.
- ✘ 3.Make preliminary sketches for your design. These can be drawn or traced using a soft blunt pencil.
This can be done before or after framing. Pencil marks will be removed in the boiling out process.
- ✘ 4.Stretch the material as taut as possible over the edges of the frame. The fabric can be secured
using dress making pins, drawing pins or masking tape depending on the thickness of the material.
It is important that the fabric is stretched as taut as possible; this will allow the wax to be applied evenly.
Begin to pin the material from the middle on opposite sides of the frame pushing outwards,
stretching as you go.

CREATING YOUR DESIGN

Trace your design onto the material using a soft blunt pencil. This can be done by placing the design under the frame and holding it up to the light or placing it over a light box. Alternatively draw the design directly onto the fabric.

WAXING

- ✘ 1. Follow the instructions provided by the manufacturer of the wax pot. Heat the wax until it has a watery consistency. You can check that the wax is at the right temperature by testing it on a small area. If the wax is transparent it has penetrated the surface, if it is opaque it hasn't.
- ✘ 2. First wax the areas that are to remain white using brushes or tjantings. Use newspaper to prevent any drips from the pot occurring on other areas. If using tjantings it is important that they stay in the wax pot until needed. Fill the reservoir with enough wax to run from the spout. Do not over-fill. If you are covering a large area use the appropriate size brush ensuring that the wax is pushed into the fibres of the fabric.
- ✘ 3. When the area is covered with wax ensure that the surface has been penetrated by turning over the frame and checking the back of the batik. It is possible to re wax the surface underneath the batik to provide extra security in the dying process.
- ✘ 4. Mistakes with wax are not easy to remove; however, it is not impossible. To remove a bad area scrape off the wax on both sides of the batik using a knife. Soak a teaspoon in boiling water and then use it to gently rub over the surface of the damaged area. Repeat this process until it is removed. The fabric must be free of wax before the dye will penetrate the surface.

DYEING

- ✘ 1.Mix the dye with the fixative. Use the information supplied by the manufacturer to help with this.
- ✘ 2.Pour the dye into the dye bath.
- ✘ 3.Remove the batik from the frame.
- ✘ 4.Immerse the batik into the dye bath. Ensure that the fabric is flat as the wax may crack.
- ✘ 5.When the dye has penetrated the fabric remove the batik from the bath. Repeat process if the colour is not as strong as desired. Do not fold the fabric as dye will collect in the cracks. It is also possible to
- ✘ paint on the dyes using brushes. Use newspaper to prevent spillages on other areas and blotting paper to remove excess dye.
- ✘ 6.Hang the batik up to dry using plastic pegs. It is possible to use a hair dryer to assist the drying process, however, be aware that the wax may melt. Leave the batik to dry overnight.

BOILING OUT

- ✖ 1.Remove as much wax as possible from the batik using a knife or a scraper.
- ✖ 2.Using a metal bucket or saucepan and wooden tongs immerse the batik into boiling water for three minutes. This helps to remove the wax and set the dye. Ensure that the fabric is fully covered using the wooden tongs to push it down.
- ✖ 3.Using a second bucket of cold water immerse the batik for a further minute to solidify the wax.
- ✖ Repeat this process if the batik is heavily waxed.
- ✖ 4.Boil the batik in water with detergent to remove all remaining traces of wax.
- ✖
- ✖ To apply other colours to the batik spread wax over the previously dyed areas. Carry out the process until you reach the desired design. Enjoy!

SAMPLE OF BATIK





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CHAPTER 4

PRINTING



4.1

INTRODUCTION TO PRINTING

- **Textile printing** is the process of applying color to fabric in definite patterns or designs.
- Textile printing is related to dyeing but, whereas in dyeing proper the whole fabric is uniformly covered with one color, in printing one or more colors are applied to it in certain parts only, and in sharply defined patterns.

METHODS OF PRINTING

- Hand printing
 - Block printing
 - Screen printing
- Machine printing
 - Direct roller printing
 - Discharge printing
 - Resist printing
 - Pigment printing

4.2

HAND PRINTING



4.2.1

BLOCK PRINTING

- THIS KIND OF PRINTING IS DONE WITH HELP OF A BLOCK, MADE FROM WOOD OR METAL
- SOMETIMES OTHER OBJECTS ARE USED AS BLOCK. LIKE.. FINGERS,, DIFFERENT TYPES OF VEGETABLES.



4.2.2

SCREEN PRINTING

- **Screen printing** is a printing technique that uses a woven mesh to support an ink-blocking stencil. The attached stencil forms open areas of mesh that transfer ink or other printable materials which can be pressed through the mesh as a sharp-edged image onto a substrate. A roller is moved across the screen stencil, forcing or pumping ink past the threads of the woven mesh in the open areas.

SCREEN PRINTING

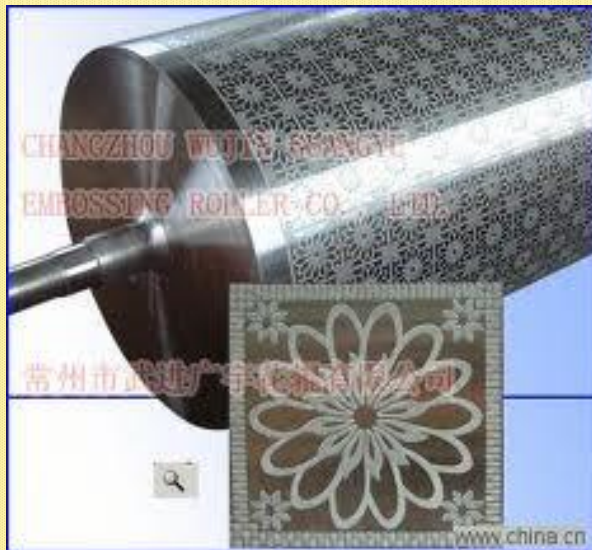
<http://en.wikipedia.org/wiki/File:ScreenPrintingColors500px.gif>



- 4.3.1 Direct roller printing
- 4.3.2 Discharge printing
- 4.3.3 Resist printing
- 4.3.4 Pigment printing

4.3.1 DIRECT ROLLER PRINTING

- **Roller printing**, also called **cylinder printing** or **machine printing**,
- This method was used in fabric mills to produce cotton dress fabrics



4.3.2 DISCHARGE PRINTING

- In this approach, the fabric is dyed in piece and then it is printed with a chemical that destroys the colour in the designed areas. Sometimes, the base colour is removed and another colour is printed in its place. The printed fabric is steamed and then thoroughly washed. This approach is on decline these days.

4.3.3 RESIST PRINTING

- In this technique, a resist paste is imprinted on the fabric and then it is dyed. The dye affects only those parts that are not covered by the resist paste. After dyeing, the resist paste is removed leaving a pattern on a dark background.

There are various methods of printing in which one of the above three techniques is used - Block Printing, Roller Printing, Duplex Printing, Stencil Printing, Screen Printing, Transfer Printing, Blotch Printing, Jet Spray Printing, Electrostatic Printing, Photo Printing, Differential Printing, Warp Printing, Batik Dyeing, Tie Dyeing, Airbrush (Spray) Painting and Digital printing

4.3.4 PIGMENT PRINTING

- The Dyes used for printing mostly include vat, reactive, naphthol and disperse colours which have good fastness properties. The pigments, which are not truly dyes, are also used extensively for printing. These colours are fixed to the fiber through resins that are very resistant to laundering or drycleaning. Pigments are among the fastest known colours and are effective for light to medium shades. If used for applying dark colours, they may crock or rub off..

TO PREPARE THIS PRESENTATION WE TAKE HELP FROM....

○ **WEBSITES...**

- Google.com
- Wikipedia
- About.com
- Teonline.com
- Alibaba.com
- Fibertofashion.com

○ **BOOKS....**

- Fiber to fabric-Potter-Corbman
- Fiber to fabric-Bernard P.Corbman
- Encyclopedia of textiles – prentice hall, inc.

thankyou