

Statement of Case

Kannur-The Land of looms and lore's is popularly known as 'Manchester of Kerala'.

History says that weaving in Kannur started 400years ago.

Historians do not know when the process of weaving cloth developed but civilization in central Europe, the middle East, India and China probably had learned to weave textiles by 2500 BC.

The year 1844 the Basal Mission started a small hand loom factory in Mangalore. After the success of this factory they were decided to start more units in their other mission stations like Cannanore(1852) and Calicut(1859)

In the first Cannanore handloom factory was later converted into a power loom factory by 'commonwealth Trust'. In 1960 the same was sold and 'after changing many hands Thiruvepathy Mills Pvt Ltd' was established. This started the era of Malabar frame looms in this present form. The products were first known as 'mission mundu' and then with the increasing innovations they started production shirting checks and bed sheets were added.

During the period of 1900-1905 Shri.Churikkadan Aaron, a convert started a small weaving unit named as 'C Aaron & sons hand loom weaving Factory' and employed few converts. Some well established and famous hand loom factories were started later.It grown and spread throughout the Malabar and people like C.Aaron motivated other entrepreneurs to start the factories under private/co-operative sector. Also around these periods before 2nd World war Weavers co-operative societies were established under the co-operative movement.

The kannanore sports shirting varieties like crepe were made waves in the international market in 1970s. There has been no other single product that could gain such popularity.

The golden era of 'Cannanore Crepe' gave a boost to the industry and many new companies started under private /public sector targeting exports. In 1980s, home furnishing products gained popularity and thus trend continues strongly after 20 years.

The *fabrics* are Curtains fabrics, Table Lenin and Upholstery in Plain loom, Dobby and Jacquards.

And the *Made ups* are

Blinds and Curtains

Cushions: Seat pads, Chair cushions, Long chair cushions, Neck roll cushions, Mattress cushions, Bunster, Floor cushions, Pet beds etc.,

Bed linen: Bed sheets, Bedspreads, pillow , Throw etc.,

Table linen: Coaster, Table cloth, Table runner, Table mat, Bread basket, Tea cozy, Napkins etc.,

Kitchen linen: Kitchen Apron, kitchen Towel, Oven Mitten/Gloves, pot holder, Dish cloth etc.,

Bath Linen: Bath towels, Bath robe, Face towels, Shower curtains, Bath mat Floor mats, Foot mats,

Covers: Pillow cover, chair cover, sofa cover, stool cover, cushion cover, Quilted sheets and cover, Duvet cover etc.,

Lifestyle products: Tassels, Hammocks, Beach Mattresses, Picnic tents, Picnic blanket Picnic table cloth Garden bench cushion, Pool chair cushions etc.,

Bedspreads are manufactured in dimensions of 54"/90", 60"/70", 70"/104", 90"/108" using 2/10s, 2/20s, 2/60s, 2/30s in warp and 2s, 4s, 6s, 10s, 20s(2ply) in weft.

Towels Terry fabrics, usually made of 2/20s or 2/30s in warp and 10s, 14s, 20s, or 30s in weft, are popular as bath towels, bathrobes and beach wear. The normal length and width of towels are 24"by48", 27"by54" and 30"by60".

The fabric may be in stripes, checks, floral or geometrical designs, with woven borders, manufactured from cotton or art silk or in combinations. The another characteristic furnishing fabric called 'mushru' cloth in satin weave, with silk or rayon warp and cotton weft, having brightly colored stripes and geometrical designs. Handloom damask is a firm lustrous reversible fabric where a weft satin is formed upon a warp satin ground or vice versa.

Casements, in a variety of designs are also popular for furnishings and dress materials depending on the weight of the fabric and end uses.

Hand looms produce a wide range of counter panes and bed covers in a range of weaves and designs. Woven in cotton, these bed coverings may be in stripes, checks, floral or geometric patterns or carry intricate jacquard and dobby designs, ethnic and traditional motifs.

Cotton Crepes: The main characteristic of crepe fabric is the puckered or wrinkled effect obtained by the use of special hard - twisted yarns. The yarns shrink in washing or finishing giving a permanent crepe effect which varies in texture according to the number of turns per inch in the yarn used.

Crepes are also produced by using 'S' and 'Z' twisted yarns with crimped effect. Such fabrics are also called 'cheese cloth'.

Crepe fabrics are woven on fly shuttle pit looms and then treated in caustic soda solution for shrinking.

Towels are manufactured in different weaves, viz. plain honey comb, huck-a-back, terry pile etc. Of these varieties, dobby and jacquard terry towels are exported in substantial quantities. The terry wash cloth known as 'bar mop' which was developed for the US market in 1976 has been important item of hand loom export. Handloom also produce herring bone, terry, honey comb, huck-a-back, Diaper and dosuti. In honey comb weave, the threads form ridges and hollows give a cell like appearance to the texture. In dosuti, double ends and double picks are interlaced in plain weave. These varieties are usually produced on the fly shuttle pit looms in different sizes using different counts of yarns.

Sl.No	Name of the Products	Warp Count	Weft Count	Red Count	Picks / inch	GSM	Width	Length
1	Turkey Towel	2/ 17s	10s	40	38	225	38	60
2	Bed sheets	2/20s	2/20s	48	48	252	120	230
3	Bed Spreads	2/20s	2s	40	16	311	120	230
4	Curtains	2/20s	2/20s	36	34	184	137	
5	Table Linen	2/20s	2/20s	40	40	150-200	40	40
6	Table Mats	2/20s	2s	40	22-26	90-100	35	48
7	Table Runner	2/20s	2s	40	22-26	90-100	14	190
8	Tea Cozy	2/20s	2s	40	22-26	90-100	22	30
9	Apron	2/20s	2/20s	40	40	150-400	48	-
10	Gloves	2/20s	2/20s	40	40	150-400	48	-
11	Tea Towels	2/20s	2/20s	40	40	150-400	18	26
12	Kitchen Towels	2/20s	2/20s	40	40	150-400	20	30
13	Cushion Covers	2/20s	2	52	22-26	300-350	54	-
14	Sofa Covers	2/20s	2	52	22-26	300-350	48	-
15	Box Pillow	2/20s	2	52	22-26	300-350	60	-
16	Floor Mat	2/20s	2s ply	16	16	780	230	152

Yarn Sourcing

Yarns are generally sourced directly from the mills of various parts of Tamilnadu like Erode, Salem, Madurai, and Coimbatore.

Scouring :

The cotton contains natural impurities and these impurities are usually removed by scouring and Bleaching. If there is any variation/ in-adequacy in scouring and bleaching will result in shade variation. So have to do a systematic and controlled pre treatment of yarn before dyeing.

The content of cotton fiber is as follows...

- Cellulose 85%
- Oil & Wax 0.5%
- Proteins, Pectin's & Coloring matter 5%
- Mineral matter 1%
- Moisture 8%

From the above it is evident that about 6.5% on the weight of cotton is impurities and also it contains about 8% of moisture. So these impurities vary in different breeds of cotton. To remove these impurities the cotton yarn is Scoured (boiled) and bleached before it is taken for dyeing. The quality of scouring is directly related with dye absorption of the yarn and consistency in color yield. Utmost care should be taken in standardizing the scouring process by controlling the quantity of chemicals used, quality of water, temperature and duration of the process.

Chemicals used for is as follows

Caustic Soda	3% on the weight of yarn
Sodium Silicate	3 %
Soda ash	1%
Soap Oil	1 %

The equipment used for scouring is called Kier boiling, the temperature around 130 degree centigrade, the process continued 6 hours and washed thoroughly by circulating water using circular pump.

Since boiling is done well above 100-degree centigrade, non-ionic products should be excluded, as they are not stable at such temperatures.

Bleaching:

Scouring removes all impurities in the great excepts the natural coloring matter, which is to be remove bleaching, especially when you are dyeing a pastel color

will help you in getting consistency on repeated and also will improve the light fastness of the dyed must. Bleaching is done by two methods (a) by using an oxygen agent or (b) by using a reducing agent. Bleaching done oxidizing agent gives a more permanent white. And bleaching is done by a reducing agent there is a change atmospheric oxygen reacts with the bleached yarn re oxidize the bleached yarn to its original color slowly kept in bleached condition for long duration.

Hydrogen Peroxide method:

Due to the ban on chlorine bleach imposed by few European countries, the Hydrogen peroxide bleaching is now done by most of the process houses. This is a costly process compared to Hypochlorite bleaching.

Protein fibers like wool, silk etc. can be bleached only by peroxide method.

The strength of Hydrogen peroxide is expressed in terms of the volume of oxygen liberated by the unit volume of peroxide solution, and it is marketed in strengths of 35% and 50%.

The relationship with % strength and volume is as follows...

❖ 35% strength on w/weight 131 volume

❖ 50% strength on w/weight 197 volume

So a 10 volume strong hydrogen peroxide means one ml. of volume strong hydrogen peroxide can liberate 10ml. of oxygen. Hydrogen peroxide is a colorless liquid and is reasonably stable when the pH value is below 7 (alkaline) it tends to liberate oxygen. So the commercially available hydrogen peroxide will be made slightly acidic by adding acid for a longer storage life.

An ideal recipe for scouring and peroxide bleaching (one volume bleach) in one bath process for 100kg cotton in 1:20 liquor ratio is given below.

▪ Wetting agent (non-ionic) 1% on weight of material = 1kg.

▪ Sequestering agent 0.3% =300gms.

Run the machine for 15 to 20 minutes at room temperature Add;

▪ Caustic soda 3% =3kg.

▪ Hydrogen peroxide (35% strength) =15ltrs.

▪ Stabilizer non-silicate 0.5% =500gms.

Run by gradually raising the temperature up to 90 degree C. for 1.5 to 2 hours.

Drain the liquor and then fill water and add.

Peroxide killer (to remove traces of peroxide) 0.5% =500gms.

Run for 15 to 20 minutes at 60 to 70 degree C.

Wash in

Acetic Acid bath (room temperature) 1.5% = 1.500kg.

Cold wash again at room temperature.

Dyeing

The consistency in yarn quality like twist per inch, yarn count, impurities in cotton, fiber content and quality etc. are the major factors to be taken into consideration.

Dyes are classified into so many groups but two major groups are **Vat Dyes** and

Reactive Dyes.

Vat dyeing got three stages of process called

- Preparation of vat or a solution of the sodium derivative of the leuco compound of the dyestuff.
- Impregnation of the yarn in the leuco compound of the dyeliquor.
- Oxidation of the yarn to make the absorbed leuco compound of the dye into its insoluble pigment.

The commercially available vat dyes can be categorized broadly into three groups.

- Group:1(yellow GCN/5G,orange RRT, Red 6B, all Violet/purple except XBN, all blue, green & khaki and all Grey)
- Group:2(Olive R, all browns G/2G/R/BR, violet XBN, yellow 2G/3RT,orange 3G,Red 3B)
- Group:3(Black AC/NB/CH/BB)

For dyeing 20kg (4 bundles)of yarn in open vat 400lts of water(1:20 liquor ratio)

Caustic soda-2kg

Sod.hydrosulphite-1kg

Leveling agent-150gm

Dyeing temp-40-50 degreeC

For vating

100gms of vat dye

water-8-10ltrs of soft water the following chemicals also required

Caustic Soda 200 g(pre dissolved)

Sodium Hydro sulphite 200 g

Wetting oil(10% soln.)-50ml

Make the dye through paste and add hot water of 55-60degreeC and stir well. Add caustic soda and mix well by constant stirring then sprinkle sodium hydrosulphite slowly by constant stirring till the dye is reduced, watch the color change, keep the vat 10-15 minutes with occasional stirring so that the entire quantity of the dye is reduced and ready for using. The dye bath should be prepared by adding and mixing balance quantity(balance after vating)of chemicals as per the above. The temp. can be 40degreeC. Add half quantity of the stock vat already prepared and mix well before the yarn is entered the bath. Work the yarn in the dye bath with vigorous turning and beating of the yarn. Then take out the yarn from the bath and repeat the beating turning by slowly increasing the temp. of the bath 55-60degreeC. keep the yarn 30-45 minutes with intermittent turning, and then take out the yarn for checking the color matching.

Vat dyes are applied to the yarn in its reduced and water soluble leuco compound and hence we have to bring back its insoluble original form by oxidation. There are two methods of oxidation like chemical oxidation/air oxidation. Chemical oxidation is by treating the yarn with oxidizing agents by this method oxidation takes place immediately. But some dyes react with oxidizing agents and tend to change color. Air oxidation takes long time but have no negative aspects. In this method dyed yarn is kept in the open air for about 30-45 minutes by frequent turning.

Weaving Preparation

Winding

1. Bobbin winding (Warp)

- Dress the knot & mount the yarn on swift uniformly to avoid any entanglement and to ensure smooth winding.
- Wind the yarn at uniform tension and traverse.

Wind required quantity of yarn is winded on the bobbin ensuring that the yarn build-up does not exceed the height of the flanges.

2. Pirn Winding (Weft)

- For the yarns are wound on the pirn with uniform tension and traverse.
- Pirn size should be consistent with the shuttle capacity.
- Keep the swift and pirn winder free from fluffs and dirt.

3. Warping

- Refer warper's card regarding design, pattern of warp, total no. of ends, sequences and number of color threads of the desired counts, length of the warps & pattern of the repeats.
- Arrange the bobbin on the creel according to the pattern.
- Draw the ends from the creels through the comb in accordance with the pattern requirements.
- Tie the starting ends of the yarn on the starting pegs at the top of the warper's frame.
- Prepare the leasing arrangement of the warp and draw the alternate ends over and under the leasing pegs at the top of the warp frame.
- Rotate the warping frame maintaining the uniform tension and wind the warp on the warping frame from top to bottom passing the warp on either side of the leasing pegs according to repeat of the design at the bottom also.
- Ensure the required length of the warp to be wound by the number of rotations given.

4. Beaming

- Refer warper's card for design, pattern of warp & width of fabric required.
- Select the weaver's beam according to the width of the warp.
- Fasten the warp on the wooden rod and place it on the weaver's beam.
- Select a beaming comb of compatible size with that of the weaver's beam.

- Carefully select the ends of warp as per the design and make it into convenient groups of ends.
- Insert 15 to 20 sets of such selected groups of ends, in the dent of the beaming comb.
- While drawing through the dents, take care to leave out convenient number of dents blank so as to spread the entire warp across the full width of the weaver's frame.
- Rotate the weaver's frame firmly and steadily, to wind the yarn on the weaver's frame.

5. Drawing and Denting

Drawing

- Ensure the heald for the correct length and type specified.
- Stretch the warp ends to facilitate selection of the correct thread for drawing into the heald wires and later through the reed.

Denting

- Ensure the reed for count and type.
- Leave equal space of reed on the both sides of the warp.
- Insert the hook through the middle of the dent and pull the hook straight backward to avoid any damage to dent.

6. Weaving

a. plain weave:

- Ensure that the weaving is carried out according to design requirements as per the approved sample.

b. Jacquard Weaving

- **Card Punching:** Select the punching card according to the number of hooks, verify proper functions of the punching nails. Start card punching from first pick onwards.

Final Fabric Inspection

- **Tolerance limits**
- 10% of packages are selected at random for opening 2 to 5 packages for inspection.
- Length: no tolerance on minis side
- Width: -1/+3cm
- Ends Per Inch(EPI): -2/+4 ends
- picks per inch(PPI): -2/+3 picks
- Defects: 1 defect per six meter

Production: Made-ups

Pattern Making

- Prepare pattern for individual size for production.
- Prepare patter count according to style.
- Seam allowance should be based on style and the type of fixtures on sewing machine during manufacturing.

Cutting:

- Spread fabrics on the cutting table according to the measurement.
- Align the fabrics on one side of the selvedge.
- Mark the measurement in the fabric.
- Cut the fabrics manually according to the size and requirement.

Sewing:

- Follow the assembly line sequence.
- Ensure the machine in set for the require d stitches per inch in accordance with the specification.

Carry out sewing operation in accordance with sewing and seaming specification

The specialty of Cannanore fabric is its color fastness due to best dyeing quality, The land has very pure natural soft water source throughout the year, which is a boon for perfect dyeing of the first part of a very important process in Textiles.

The major source of water available in our area is sub soil water (well water) and deep soil water (Bore well water). Surface water or rain water, which as percolated a short distance (maximum 50 feet) through the soil or rock formations and collects in to the wells. This water will have lot of dissolved organic matters and minerals collected during its percolation through the soils and the amount and variety of such dissolved matters will vary from place to place depending on the nature of soil of that area. Deep well water is the water from bore wells, which are bored through the subsoil and deep in to the water bearing strata beneath the subsoil of the earth. Water from these sources is generally free from organic matter, but the dissolved mineral content will be very high because this water is percolated deep through several layers of soil and rock.

The Hardness in water will affect dyeing with respect to dye absorption, level dyeing, wet rubbing, softness of the dyed yarn/fabric and the variation in shade from lot to lot. So the water used for dyeing should be soft water (low hardness) and should be consistent all the time. The hardness level up to 75ppm is acceptable for vat dyeing and beyond this level will definitely affect the dyeing. So for a better result in dyeing and repeatability of shades, must maintain the water quality throughout the year, for which periodic testing of water.

Yarn boiling using Coconut inner shells for duration of around 12hours, helps in removing all the impurities in the cotton yarn, and softens the cotton yarn for deep color absorption. The subsequent bleaching gives the fresh white look and creates the base for the rich penetration of the colors.

Hand dyeing in open dye bath, using the most durable Vat Dyes, prepares the striking look of the colours. Due to its high cost, all around the country Vat Dyes are slowly being shelved. But, we in Kannur have continued with the same – This had helped kannur to acknowledge as one of the safest production centre's when Germany introduced the ban on Azo Dyes.

The **special beating techniques** of the weaver, creates the dominance of the weft on the surface of the fabric. The blend of the warp and weft is so well defined that a feel of the fabric reassures you the effort and attention that has gone into its creation.

The specialty of furnishing fabrics from Malabar is the compact structure and texture of cloth, unique color combinations, wide width (90"-120") and skilled craftsmanship.

Products from kannur are distinctly recognizable due to the richness it carries and the feel of life in it. Produced using the highest reed and the optimum pick, it brushes away the limp and lackluster fabric from other parts of India. The hefty loom that is used by the weavers to give life to the fabric is not available in any other part of the Country. The globe decorating the interior of the Rich and the famous, the mighty and majestic, kannur fabric decorate the interiors of wear the **white house**.

Recognised as one of the 24 Textile Centres & one of the 11 Towns of Export Excellence, Kannur products stands out for its uniqueness. It is already the unofficial home for high quality Home Textiles. In the last 30, no other place in India has been able to get such worldwide attention as the products from Kannur.

Furnishings manufactured from waste cotton are an interesting and exotic variation and fabrics made of coarser counts of yarn with art silk embellishments are popular in the west. Seer suckers, woven with two warps to produce a puckered surface effect, are ideal for dress materials as well as furnishings, and this is one of the main items of production.

These products of the Indian handloom are second to none while they have the advantage of being unique and exotic.

The cloth construction criteria for all these items include the weight, yarn count and type of weave suiting the relevant end use.

The products from Kannur will continue to grace the rich household all around the Globe. We need now to stamp this authority with the **Geographical Indication Registration**.