ANNEXURE - 1

<u>INSTRUMENT: -LENZING (SIGMA-500)</u>, Computer with Monitor

<u>Instrument:</u> - Lenzing Sigma-500 is a fully automatic instruments

That can test many different yarn samples, and is based on the principle of constant rate of elongation.
Start the Sigma-500 by double click on SIGMA-500 on desk top.

The following are the parameters are visible on monitor

Draw Unit

- o Unit In-put
- o Motor In-put
- o Motor Reference

Component   XY Arm

- o EE PROM
- o Digital Out-put
- o **Digital In-put**
- o Force & Position
- o Pressure Regulator
- o Clamp
- o **X - Motor In-put**
- o X- Motor Reference
- o Y- Motor In-put
- o Y- Motor Reference

Procedure Yarn changer

- Procedure In-put
- Motor In-put
- Motor Reference

The following function will appear with the Green color signal. If all the function are in OK condition then the next program will be automatically commence or at any time Red signal indicates before the signal values then consult to Instrument department.

Start the SIGMA 500, the following is the parameters on the monitor

And select the required Parameter on the monitor Screen.

File edit view service window help
Prepare Group Parameters and Test Parameters by clicking on File

File Edit

- Group Parameters
- Testing Order
- Test Parameter
- Show /Print actual group
- Print out set-up
- Date expose
- Exit program

Service

- Force Measuring System
- Tester
- Change Password
- Show Print Screen Button Option

Calibration:-

- Click on Service Option
- Then on Force Measuring System
- Then finally on Calibration.

Place 1000gms on the Upper Clamp, click OK

Force will be ZERO after calibration.

Testing Procedure

Clip the testing yarn on to the left of the bobbin changer. Then pull out the first little clamp on the bobbin changer and secure the thread in place. Now do the same for the right-hand clamp on the bobbin changer. Finally cut off any excess yarn to the right of the second clamp. This should leave the yarn coming through the white guide & then strung between the two clamps on the bobbin change.

It is possible to test up to 24 yarn multiple times. After feeding the required parameter start the SIGMA 500, the loading arm will automatically take the first thread from the bobbin changer & then string it through the two main clamps &dropping the end of the thread into the vacuum removal tube.

At the end of the shift, the operator will need to empty the waste bin place underneath the waste yarn change.

SPECIFICATION OF CHIPS

Type of Polymer   Semi-Dull

Sr.No.	Properties	Norms
1	I.V. (dl/gm) @ 25°C	0.635 ± 0.01
2	-COOH Group (meq/kg)	≤ 40
3	Color Value Lx	≥ 75
4	bx	4.50 ± 2.0
5	Chips/gram	26 ± 5
6	% ASH Content	0.30 ± 0.03

I.V. Solvent: - Phenol: TCE: 60:40 with 0.5% Conc.@25°C

Tensile Properties of Polyester by Instron Tester

Instrument: -   (i) Instron machine

Instrument Set-Up (Test Method)

Gauge Length

POY Polyester—125 mm or 12.5cm

DTY/FDY   — 254 mm or 25.4 cm

Speed for POY, FDY & DTY is 30cm/min.

Calibration after instron has turned off:-

(a)   Turn the Instron power switch to ON position.

(b)   On the control panel to the left of the cross head. ALL digital displays will read –1.8.8.8.8 & ALL red light will be ON

(c)   Load display (above CAL button) will then read 3999.

(d)   Press CAL. Load display (above CAL button) will then read 5.000.

(e)   Press Enter. Load display (top of the panel) should read approximately 0.0000. Zeroes should always be displayed in the first two digits

(f)   Set gauge length by pressing the jog switch on the right side of the cross head & lower the crosshead until the specimen grips very slightly touch.

(g)   Press GL reset. Extension digital displayed should read 0.00

(h)   Press jog switch & allow the crosshead to move up to the correct gauge length position as mention above .The number will appear in the extension digital display.

(i)   Press Reset GL- Light will come on.

(j)   Press Break (above gauge length) - Break and off light will come on.

(k)   Press IEEE-48   Light will come on.

Note: - Eight lights should be on.

(a) Stop   (b) IEEE-488   (c) Testing Area Above head (d) Metric (e) At GL
     (f) Strain (above track) (g) Break & Off.

Calibration when instron has not been turned off:-

(i)   Press IEEE-488 light will go off.

(ii)   Press CAL Load (above CAL button) will then read 5.000

(iii)   Press Enter -Load display (at top of panel) should read approximately 0.000

(iv)   Press IEEE-488 - Light will come ON.

Set Gauge length:-

(i)   Lower safety stop measurement on the left side of the crosshead.

(ii)   Using the jog button on the right side of the cross-head, lower the crosshead until the specimen grips very slightly touch.

(iii)   Press IEEE-488 Light may be Off.

(iv)   Press GL Reset - Extension digital display read 0.00

(v)   Press Jog key and allow the crosshead to move up to desired gauge length position (POY-125mm & FDY/DTY-254mm), the number will appear on Extension digital display.

(vi)   Press GL - Light will come ON.

(vii)   Press IEEE-488 - Light will come ON.

Turn computer ON.

(a)   It automatically loads to Main Menu.

(b)   At the main menu set test option. Operator - XYZ,

Sample ID-Enter Merge no. /Line no Method Type-   Yarn/Fiber.

Method Number- Enter 2 for POY & 6 for FDY/DTY

Press F10 & fill the Identification on screen.

And now take a small length of the testing yarn sample approx.250mm-300mm and fix it between two jaws upper and lower jaw by releasing with the help of pneumatic key present in both the jaws for release.

Press F10 and fill denier in liner density the again enter key to except the denier filled press enter to start data or Esc to end then data acquisition is under progress, after a maximum load the yarn breaks, the upper jaw comes to its original position. One sample is tested twice & %Elongation/Tenacity of the average value is noted. Follow software instruction and data will be printed and the file will automatically be saved.

INTRINSIC VISCOSITY OF CHIPS & YARN

Test Method: - ASTM D-2857

Purpose: The purpose of this procedure is to determine the Molecular weight & Degree of polymerization.

Equipments: -

(i) Constant temp. Viscosity bath

(ii) Analytical Balance

(iii) Viscometer Ubbelohde

(iv)Volumetric Flask capacity 50 ml.

(v) Electronic watch of least count 0.01 Sec

(vi) Viscometer Holder

(vii) Thermometer of least count 0.01°C

(viii) Water bath

Reagent: -

(I) Phenol AR grade

(ii) 1,1,2,2 Tetra Chloro Ethane

Solvent Preparation:-

Take Phenol:TCE:: 60:40 Wt. /Wt. in a glass bottle &stir 4hrs for proper mixing. After proper mixing check Specific gravity at 20° C & maintain 1.236 ± 0.001.

Blank :- Rinse the Ubbelohde viscometer with I.V. solvent two times& hang the viscometer for three minutes in Constant temp.Viscosity bath at

constant tempr.25°C then measure the flow time between two layers of viscometer. Run five measurement & average value is taken.

Method:- Weight 0.2500gm of chips /yarn on analytical balance & put the sample in 50ml.Volumetric clean &dry flask. Add approx. 15ml. I.V. solvent in 50ml volumetric flask & stopper the flask tightly and place the flask on water bath up to complete dissolution of polymer. After complete polymer dissolution remove the flask from water bath & cool down up to room temp. After cool down make up the flask up to mark with I.V. solvent. After cool down make up the flask up to mark with I.V. solvent stopper the flask tightly & shake well. Rinse the viscometer with solution & place the viscometer vertically in viscosity bath at the constant tempr.25°C. Allow minimum five minutes for bath conditioning, before running first flow. During the meantime, take rinsing flow & after five minutes take solution flow with the help of electronic watch.

Calculation:-

$$\text{I.V.} = \frac{[\sqrt{\{(RV-1) \times 1.48+1\}}-1]}{0.37} \text{ dl/gram}$$

$$\text{Relative Viscosity} = \frac{\text{Flow time of solution}}{\text{Blank}}$$

DRAW FORCE

INSTRUMENT:- Dynafil -M (Tex techno),Computer with Monitor

Instrument setting:-

(i)   Temperature adjustment :- Adjust heater temp. to 185°C. Allow temperature to equilibrate for 30min.

(ii)   Set test length 150 Mtr

(iii)   First Godet 0%

(iv)   Second Godet 70%

(v)   Test Speed 150Mtr. /min.

Calibration:-

Calibrate the Dynafil-M at the beginning of each shift. The balance of the tension compensation system is to be checked & set to Zero with the help of F8 key for balance. And now place 100cN (0.1N) weight on the balance arm & note the reading on the Dynafil screen which should be 100cN. On the other hand check a pre tested spool which is considered as a standard sample & match the value to that of pre tested value.

Now set the Parameter with the help of F1 key in Group-1 Fill up the specification & feed TEST in code. Press F10 key to save the specification filled in Group-1.

Press F2 key for Group-2 & now feed the parameter as given below.

Test Length 150Mtr.   Heating tube temp.-185°C

 Test Speed 150Mtr. /min.   Draw off Godet   70%

Position the samples to be tested in front of the Dynafil machine & load the sample.

The yarn is drawn between the Godet 0% the second Godet having big diameter 70% then the first one. In this case a yarn of length 150mtr.is tested by passing it through a heater of tempr.185°C &passed through out-let waste pipe. The variation in Draw force in 150mtrs.is indicated by the Co-efficient of variation (Cv) & note down the Draw force value. The value should be constant.

CROSS-SECTION OF POLYESTER YARN

INSTRUMENT:-Microscope, Monitor

Equipment:-

  i.Microscope
ii.Slides
iii.Scissors
iv.Shaving Blade
v.Monitor

PROCEDURE:-Place the slide in wooden block so that the slot opening is pointed upwards. Place black viscose yarn at the bottom & now start placing the test yarn one by one by placing alternate black viscose yarn for partitions & repeat 10-12 samples. The slide comes to fill & then again place viscose yarn at the top of the slide. Hold the wooden block in one hand and using a good quality blade cut gently the front and opposite unwanted waste (outside the slide cut area).Turn ON the microscope and monitor and now place this slide on a glass side of microscope and bring it to the center of the eye piece check for specified number of filaments, SLOW and FAST HOLE and for proper pack. A large filament is considered to be a FAST HOLE when its diameter measures 25% large than the average diameter of the other normal filament of that Pack .A small filament is considered to be SLOW HOLE when is diameter measure 25% small than the average diameter of the other normal filament of that Pack.

Estimation of % spin finish on yarn

Principal: By using extraction method we can find out the finish percentage in the yarn

Purpose: To decrease the electrostatic charge present in the yarn.

Apparatus: Beaker, Finish columns, Dedicators.

Chemicals: Hexane.

Equipments: Water bath, Wrap Reel.

Safety Data: Use the hand gloves to avoid the burning.

Procedure:

1) Collect the sample from production and to make its hanks of about 2.00gms on wrap reel
2) Note the weight of yarn (X) & empty beaker (Y).
3) Insert the yarn sample into the finish column. & Fill it with Hexane up to it will dip completely.
4) Wait for 15 min. and flow down the Hexane into the weighted beaker.
5) Repeat the procedure no 4.
6) Keep this beaker on the water bath.
7) Start the heater of water bath, after completion of evaporation, remove the beaker from water bath Keep this beaker in dedicators for cooling.
8) After proper cooling weigh the wt. of beaker (Z).

Calculation: $\dfrac{Z-Y}{X} \times 100\ \%$

% MOISTURE ON PET CHIPS

Test Method: - Gravimetric

Equipments:-

(i) Mitsubishi CA-06 moisture analyzer

(ii) Glass sample boats

(iii) Glass sampler

(iv) Titration cell with stir jar

(v) Chart paper for recorder

(vi) Vacuumed grease

(vii) Syringe for injection

(viii) Data transfer box for transferring weight to CA-06 from balance holders

Reagents :-

(i) Molecular Sieve

(ii) Silica Gel

(iii) N2 (Nitrogen)

(iv) IMO: Methanol solution

(v) ICAO: Methanol solution 1.09255.0500

(vi) Distilled water

Calibration & Instrument Settings for the Mitsubishi moisture analyzer

INSTRUMENT SETTING

Set Temp.of Vaporizer (VA-T) 240°C,

Time : 1

Blank (B) =0,

SENE: 0.2,

VA-P: 1-1-1,

PRINT: 3,

CALC: 1-1

Calibration:- After instrument will be ready inject the pre weighted DM water in the titration jar with the help of syringe & press the start button. When the titration will complete results will be print out.

Limits: - 98 to 102 % acceptable limit

Method:-

a) Place an aluminum liner into the glass boat to check the chips moisture. Select File no.1

b) Press start to send the boat in to conditioning mode.

c) BP = Boat Purge   1 min.

d) BA = Boat Age   1min.

e) BC = Boat Cooling   1min.

f) Note: Make sure the background is dry before testing samples.

g) Once conditioning is complete, take the glass sample holder, shake well of top layer of chips & fill holder to the top of rim with chips this will produce a weight of around 3.0 to 5.0gram.

h)	Put the cap on the holder & place on the analytical balance.

i)	Press the C>Cal/Menu button on the balance. The CA-06 will beep once indicating the weight has been transferred. This is the weight for Big (W).

j)	Press the start button. The digital display will say "Add Sample"

k)	Remove the glass plug from the CA vaporizer. Pour the chips sample into the sample boat. Install the glass plug back in the vaporizer tube.

l)	Press the start button. Return the empty glass sampler to the analytical balance.

m)	Press the C>Cal/Menu button on the balance. The CA-06 will beep twice. This indicates the second weight has been transferred to the CA -06. This is the weight for the small (w).

n)	The chips will automatically go into the vaporizer oven where the moisture will be driven off at 240°C.The N2 gas will the moisture from the sample to the titration cell where moisture will be titrated. The result will be calculated & the analysis will print out in %.

% ASH OF PET CHIPS

Test Method :-Gravimetric

Equipments:-

i.Silica Crucible with cap.
ii.Muffle Furnace
iii.Analytical Balance
iv.Desiccators

Method:-

(a)	Weight the empty silica crucible (W_1) gram

(b)	Weight the silica crucible + chips (W_2) gram.

(c) Put the crucible in muffle furnace for 2hrs @ 750°C &after 2hrs put the crucible in desiccators & cool down at room temp.

(d)   Take final weight of the silica crucible (W_3) gram.

(e)   Calculation:-

% Ash= $\dfrac{(W_3-W_1) \times 100}{(W_2-W_1)}$

ESTIMATION OF CARBOXYL GROUP (COOH)

PRINCIPLE:

The carboxylic Group content has an influence on the Thermal degradation of Polyester.

The dried chips are dissolved in a mixture of Phenol and Chloroform under the reflux. After mixture is titrated with a 0.05N solution of Potassium Hydroxide in Benzyl alcohol, using Tetra bromophenol Blue as an indicator.

EQUIPMENTS:
(i)   Round bottom flask, 250 ml
(ii)   Reflux condensers.
(iii)   Heating Mantle
(iv)   Burette 10 ml
(v)   Analytical Balance
(vi)   Measuring cylinder, 100 ml

REAGENTS:
(i)   Phenol
(ii)   Chloroform.
(iii)   Phenol/Chloroform mixture 2:3 by weight

(iv)   0.05N KOH in Benzyl alcohol

(v)   Tetra bromo phenol Blue, 0.1% in ethanol

Preparation of Phenol/Chloroform 2:3 parts by weight :

(i)   Mix 40% by weight of Phenol and 60% by weight of Chloroform in a dry glass beaker and transfer it to stock colored bottle.

(ii)   Mix well by magnetic stirrer.

Preparation of 0.05 N KOH in Benzyl alcohol :

(i)   Weigh accurately 3.28 g of KOH pitted (85.5% alkalinity) and transfer to1000 ml volumetric flask.

(ii)   Add 10 ml water and dissolve it properly.

(iii)   After getting clear liquid, make up the solution up to 1 litre with Benzyl alcohol.

Preparation of 0.1% Tetra bromo phenol Blue :

(i) Weigh accurately 0.1 g of Tetra bromo phenol Blue.

(ii) Dissolve in ethanol and transfer to 100 ml volumetric flask.

(iii) Make up the solution up to 100 ml with ethanol.

Standardization of 0.05N KOH SOLUTION:

(A)   Weigh with analytical accuracy approx. 0.006-0.007g Potassium in Hydrogen Phthalate in 250Erlenmeyeflask.

(B) Dissolve with 25 ml distilled water.

(C) Add few drops of phenolphthalein indicator. Mix it well. Titrate with 0.05N KOH in Benzyl alcohol until a pinkish end point. Calculation:

$$\text{N of 0.05N KOH in Benzyl alcohol} = \frac{\text{W (Weight of Potassium Hydrogen Phthalate)}}{\text{Volume of KOH used x 0.20422}}$$

PROCEDURE for Oligomer and Polymer Carboxylic end group:

(a)   Weigh accurately 2 - 4 g for polymer and 0.25 g for oligomer, into 250 ml round bottom flask.

(b)   Add 50 ml of Phenol/chloroform mixture.

(c)   Reflux for about 1 hour until a clear solution is obtained.

(d)   After cooling to room temperature add, with stirring 0.5 ml Tetra bromo phenol blue solution.

(e) The yellow colour is developed, and then titrate it with a standard 0.05 N Benzyl alcoholic KOH solution to a distinct blue colour through green.

(f) Run blank with the above method, omitting the sample.

(g) For better comparison of titrated sample with blank, a little TiO2 is added to the blank.

CALCULATION

$$\text{-COOH GR. Milli. Eq. /kg.} = \frac{N \times (v_2 - v_1)}{W} \times 1000$$

Where,

V_2 =   Volume of 0.05 N KOH required for sample.

V_1 =   Volume of 0.05 N KOH required for blank.

N   =   Normality of KOH solution.

W   =   Sample wt. in gms.

Sample No. 1

Details of fabrics - Prepared on Water Jet Loom

Warp - 20/1 BRT Mono of modified line of Garden Silk Mills.

Weft - 270 Neps (Air Textured with Slab)

Quality -

Sample No. 2

Details of fabrics - Prepared on Rapier Loom

Warp - 20/1 BRT Mono of modified line of Garden Silk Mills.

Weft - 3/20 BRT Mono of modified line of Garden Silk Mills.

Reeds/inch - 140

Picks / inch - 84

Quality - Orgenza

Sample No. 3

Details of fabrics - Warp Knitted Fabrics (7 nos.)

Sample No. 4

Details of fabrics - Prepared on Ruti-C Loom

Warp - 20/1 BRT PET Mono of modified line of Garden Silk Mills.

No. of ends in beam – 12000 nos.

Weft - 84/36 SD Cationic crimp, 1200 twist S/Z

Reeds/inch   - 210

Picks / inch   - 78

Width of the fabric   - 56 inch

Weight of the fabric   - 67 grams/meter

Quality   - Cationic Satin Mono

Sample No. 5

Details of fabrics   - Prepared on Circular Knitted Machine

Warp   - 20/1 SD Mono of modified line of Garden Silk

Mills. Weft   - Spun Yard

Sample No. 6

Details of fabrics   - Prepared on Power Loom at Pashupati Textile.

Warp   - 20/1 SD Mono of modified line of Garden Silk Mills.

                     No. of ends in beam – 8400 nos.

Weft   - 20/1 SD Mono of modified line of Garden Silk Mills.

Reeds/inch   - 112

Picks / inch   - 96

Quality   - Bolting Cloth

Sample No. 7

Details of fabrics   - Prepared on Power Loom at Ahuja Textile.

Warp   - 20/1 SD PET Mono of modified line of Garden Silk Mills.

Weft   - 40 Single Spun

Reeds/inch   - 96

Picks / inch   - 60

Weight of the Fabric   - 6.3 kg/100 meter

Quality   - Chanderi

Sample No. 8

Details of fabrics   - Prepared on Power Loom.

Warp   - 20/1 PET Mono of modified line of Garden Silk Mills.

Weft   - 40 Single Staple Slub

Sample No. 9

Details of fabrics   - Knitted Mono Net Fabric on Warp Knitting

Machine. Product   - 20 SD Mono Polymer

Weight of the Fabric   - 1 kg/22 meter

End use   - Sarees, Garment, Dress Material

Sample No. 10

Details of fabrics   - Prepared on Power Loom of Chaturbhuj Fabric.

Warp   - 20/1 BRT Mono Nylon of Prafull Over Seas.

                     No. of ends in beam – 10800 nos.

Weft   - 84/36 SD Catoinic Crimp.

Reeds/inch   - 192 (96 x 2)

Picks / inch   - 88

Width of fabric   - 55 inch

Weight of Fabric   - 70 gm/meter

End use   - Sarees, Dress Material

Sample No. 11

Details of fabric - Knitted Fabric Prepared on Warp Knitting Machine China
                    Made.

Product   - 20/1 SD Mono Polyester of modified line of Garden Silk
                    Mills.

                    & 210 viscose yarn

Weight of the Fabric - 1 kg/14 meter

End use   - Sarees, Curtain, Dress Material

Quality   - Knitted Brasso Sarees

Sample No. 12

Details of fabrics - Prepared on Looms of Adarsh Fabrics.

Warp   - 20/1 SD Mono Polyester of modified line of Garden Silk
Mills.

                    No. of ends in beam – 4800 nos.

Weft	- PV & PC double HT.
Reeds/inch	- 124 (62 x 2)
Picks / inch	- 68
Width of fabric	- 52 inch
Weight of Fabric	- 78 gm/meter
End use	- Curtain, Dress Material
Machine	- Shuttle less Loom, Rapier Loom
Quality	- Mono Multi Slub Sarees

Sample No. 13

Details of fabric- Prepared on Looms of Adarsh Fabrics.

Warp Mills.	- 20/1 BRT Mono Polyester of modified line of Garden Silk
	No. of ends in beam – 5800 nos.
Weft	- 20/60 BRT Mono Pattern.
Reeds/inch	- 204 (104 x 2)
Picks / inch	- 96
Width of fabric	- 52 inch
Weight of Fabric	- 34 gm/meter
End use	- Sarees, Dress Material, Garments
Machine	- Shuttle less Loom, Rapier Loom

Quality   - Mono Brt x Brt pattern

Sample No. 14

Details of fabrics - Prepared on Shuttle Loom of Adarsh Fabrics.

Warp   - 20/1 SD Mono Polyester of modified line of Garden Silk
Mills.

No. of ends in beam – 5200 nos.

Weft   - 40 Single PV.

Reeds/inch   - 96 (48 x 2)

Picks / inch   - 76

Width of fabric   - 51 inch

Weight of Fabric - 69 gm/meter

End use   - Sarees

Machine   - Shuttle less Loom

Quality   - Mono Slub Sarees

Sample No. 15

Details of fabrics - Prepared on Shuttle Looms of Adarsh Fabrics.

Warp   - 20/1 BRT Mono Polyester of modified line of Garden Silk
Mills.

No. of ends in beam – 5200 nos.

Weft   - 160 Air Tex Yarn Polyester.

Reeds/inch   - 192 (96 x 2)

Picks / inch   - 48

Width of fabric   - 52 inch

Weight of Fabric   - 56 gm/meter

End use   - Sarees, Dress Material

Machine   - Shuttle less Loom

Quality   - Super Net

Sample No. 16

Details of fabrics   - Prepared on Looms of Adarsh Fabrics.

Warp   - 20/1 SD Mono Polyester of modified line Garden Silk Mills

                     -   No. of ends in beam = 7200 nos.

Weft   - 20/1 SD Mono Polyester.

Reeds/inch   - 200 (102 x 2)

Picks / inch   - 90

Width of fabric   - 67 inch

Weight of Fabric   - 29 gm/meter

End use   - Industrial Use (Filtering Application)

Machine   - Shuttle less Loom, Rapier Loom

Quality   - Bolting Cloth

Sample No. 17

Details of fabrics - Prepared on Looms of Lakshmi Textile.

Warp   - 20/1 SD Mono Polyester of modified line of Garden Silk Mills.

Weft   - 40 Modal Yarns.

Reeds/inch   - 144

Picks / inch   - 64

Width of fabric   - 45 inch

Weight of Fabric - 6.2 kg/100 meter

End use   - Sarees, Dress Material

Machine   - Rapier Loom

Quality   - Super Mono Sarees

Sample No. 18

Details of fabrics - Prepared on Looms of Lakshmi Fabrics.

Warp   - 20/1 SD Mono Polyester of modified line of Garden Silk Mills.

Weft   - 270 neps

Reeds/inch   - 96

Picks / inch   - 44

End use   - Sarees, Dress Material

Machine   - Shuttle less Loom

Quality   - Banglori Silk

Sample No. 19

Details of fabrics   - Prepared on Looms of Adarsh Fabrics.

Warp   - 20/1 Mono Polyester of modified line of Garden Silk Mills.

Weft   - 220 Slub.

Reeds/inch   - 96

Picks / inch   - 60

End use   - Sarees, Dress Material

Machine   - Shuttle less Loom, Rapier Loom

Quality   - BhagalPuri.

Sample No.20

Details of fabrics   - Prepared on warp knitting machine

Yarn Details-20/1 Mono Polyester of modified line of Garden Silk Mills. End use - Sarees, Dress Material