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1. BASIC WET PROCESSING TERMS

ABSORBENCY: The ability of one material to take up another material.

BLEACHING: It is a process to remove the natural and artificial impurities in fabrics to obtain clear white for finished fabric or in preparation for dyeing and finishing.

CHEESE: A cylindrical package of yarn wound on a flangeless tube.

DENSITY: The mass per unit volume

DYEING: It is a process of coloring fibers, yarns, or fabrics with either natural or synthetic dyes.

DYES: Substances that add color to textiles.

EFFLUENT: Waste water released after pretreatment, dyeing & finishing of Textile.

FINISHING: It includes various operations such as heat-setting, napping, embossing, pressing, calendaring, and the application of chemicals that change the character of the fabric.

LUSTER: The quality of shining with reflected light on textile material.

pH: Value indicating the acidity or alkalinity of a material.

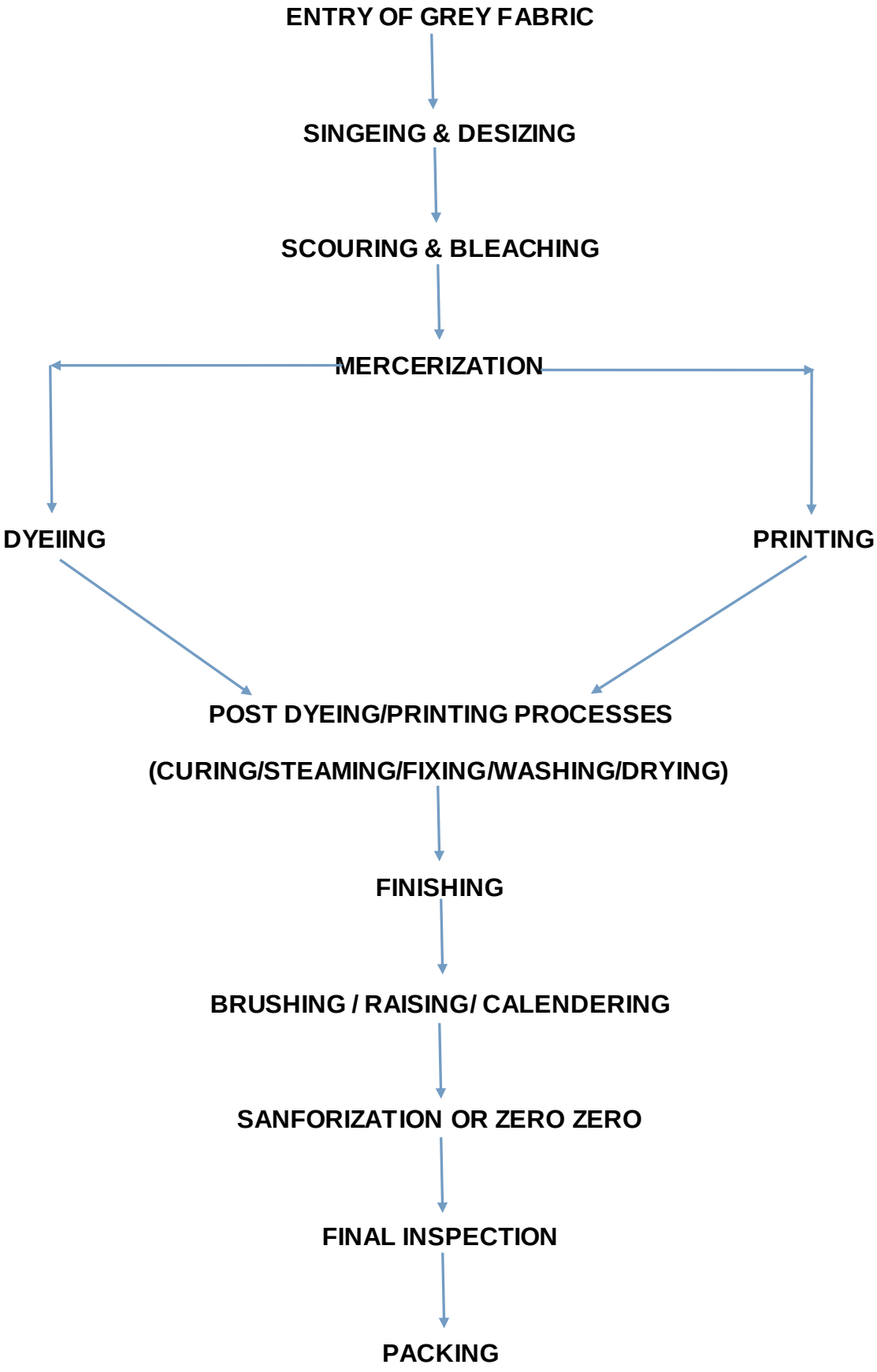
PIGMENT: An insoluble, finely divided substance, used to color fibers, yarns, or fabrics.

SOFTENER: A product designed to impart soft mellowness to the fabric.

YARN: A generic term for a continuous strand of textile fibers, filaments, or material in a form suitable for knitting, weaving, or otherwise intertwining to form a textile fabric.

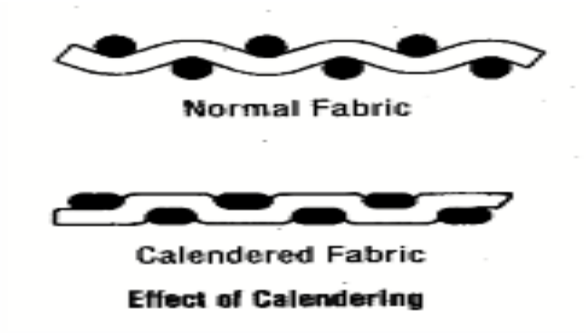
YARN COUNT: Yarn count is the numerical expression of yarn, which defines its fineness or coarseness. (Linear density).

2. SEQUENCE OF OPERATIONS IN WET PROCESSING



3. Brief note on calendering:

Calendaring is a process where fabric is compressed by passing it between two or more rolls under controlled conditions of time, temperature and pressure



Effect of Calendering

Calendaring brings the following major fabric changes in fabric:

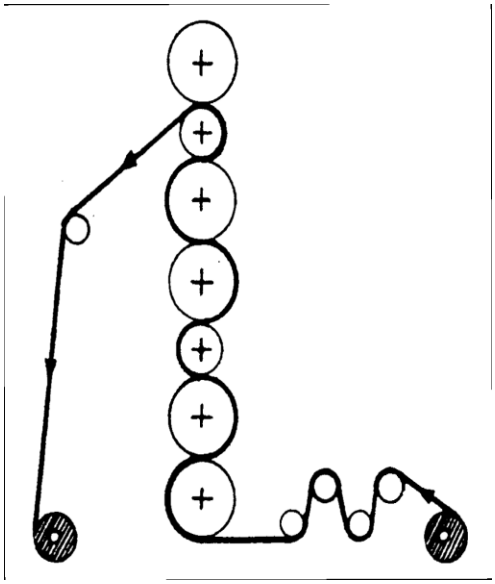
1. Reduced fabric thickness.
2. Increased fabric lustre,
3. Increased fabric cover,
4. Smooth silky surface feel
5. Reduced air porosity
6. Reduced yarn slippage.

Swizzing Calendars

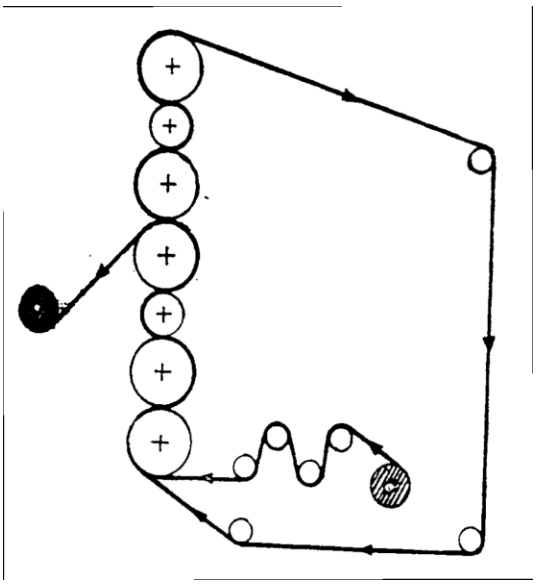
Swizzing calendars usually consist of seven to ten bowls and are run at ambient temperatures. The effect on fabric is smoothness and lustrous appearance.

Chasing Calendars

In Chasing calendars cloth makes several passes through the nips before it exits to a take-up roll. This gives the cloth a thready-linen appearance and a soft special feel.



Swizzing Calendars



Chasing Calendars

Friction Calendars

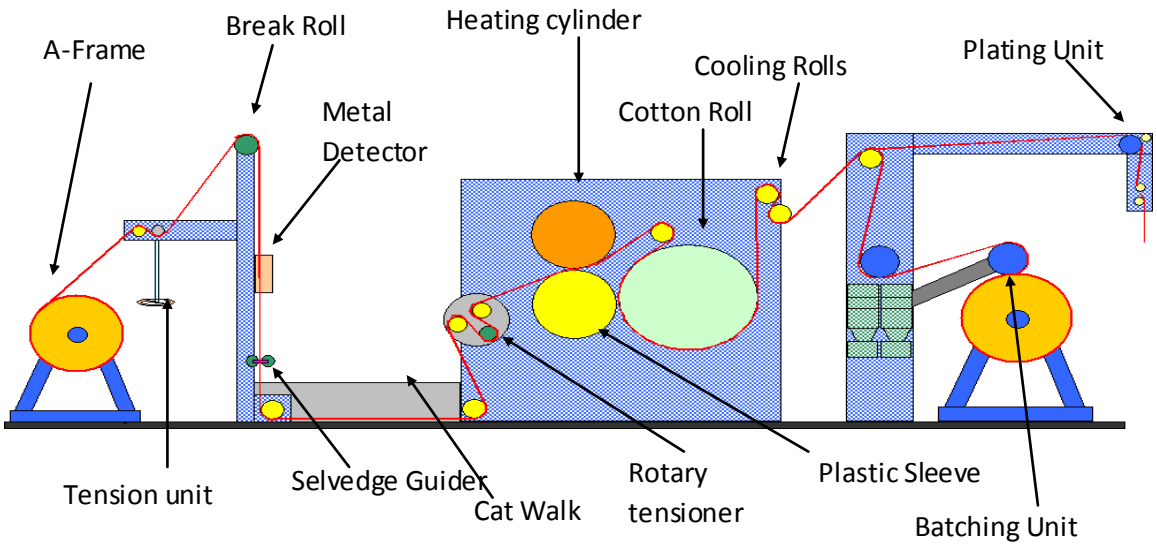
As the name implies, friction calendars apply a friction force to the face of the fabric.

Schreiner Calendar

Schreinering is actually embossing by the use of a very special pattern. This operation gives a silk-like brilliance to cotton fabrics. Schreinering mercerized cotton fabrics give the nearest resemblance to silk.

4. Details of calendering machine:

Passage of a Modern calendar machine:



Inlet unit: It contains tension device & break roll for even and proper feeding of fabric to the machine.

Metal Detector: To detect metal particles in the fabric for avoiding damage of calendar rolls and fabric.

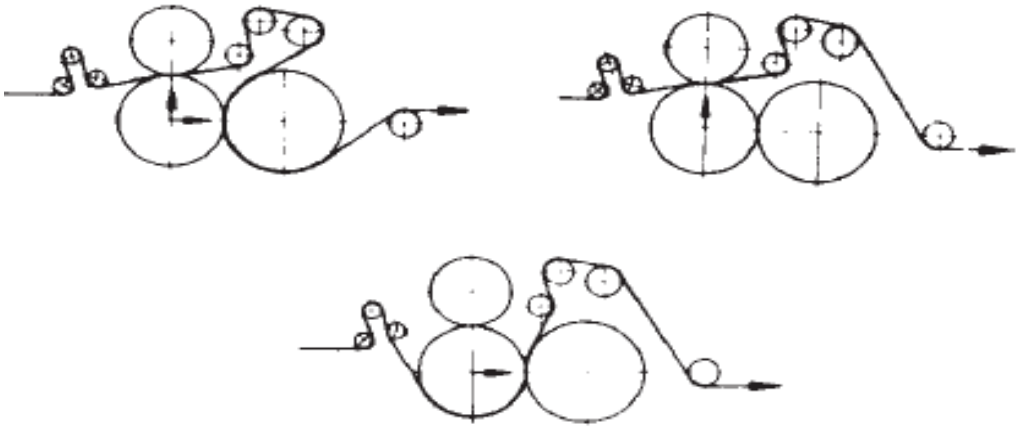
Cat Walk: To avoid dust & dirt particle coming in contact with fabric.

Calendaring Unit: This Contains One steel roll, plastic coated roll & one cotton roll. Steel roll is heated with Thermic fluid. Hydraulic oil is supplied in plastic roll to give enough pressure on the steel roll. Cotton roll is used to increase the weight of the fabric.

Selvedge guide

Inlet feeding unit

Three different passage of fabric:



Arrangement of plastic and steel roll

Fabric feeding in calendar unit

Out let batching device

Cooling rollers: These rollers are used to cool the fabric after passing from calendar unit.

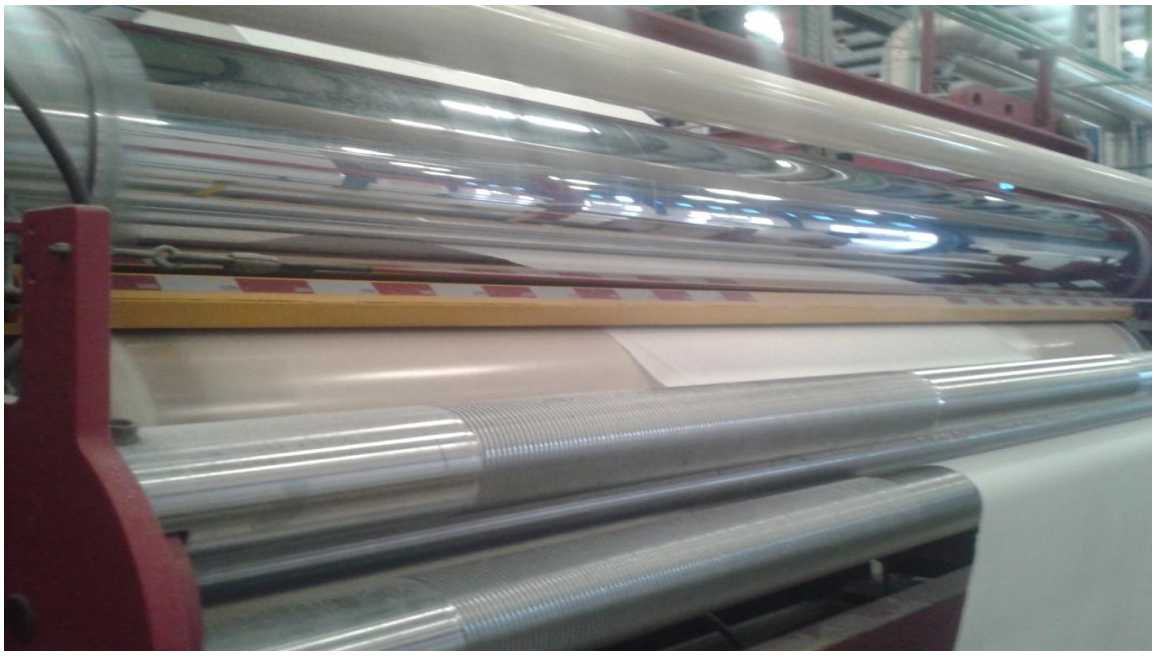
Batching / plaiting device: This device is used to wind the fabric or plaiting of the fabric in trolley.

S.No	Parameters	Settings
1	Steel Roll Temperature	30℃-150℃
2	Top Line pressure	50-300 Ns
3	Rear Line pressure	50-300 Ns
4	Speed Of Machine	10-120 m/m
5	Hydraulic Oil Temperature	27℃-35℃
6	Batching arm pressure	1-2 Bar

5. Operating calendaring machine: (Step by step)

Switching on the Power

Open Thermic oil and steam valve

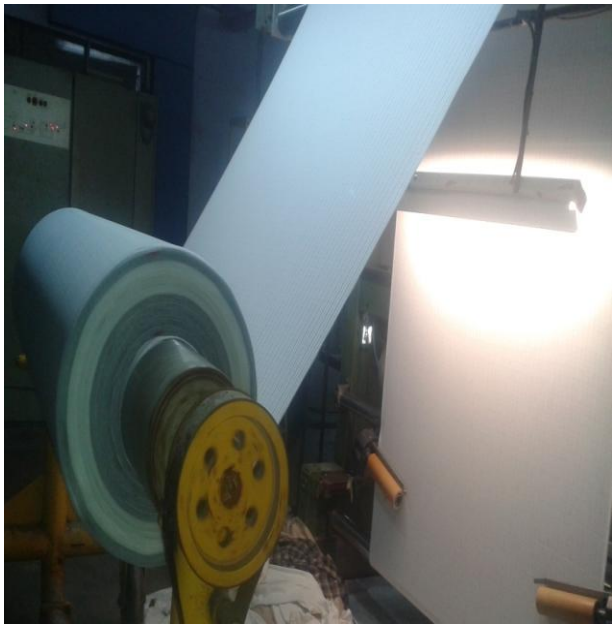


Checking the proper passage of fabric

Operating Main panel

Adjusting the temperature

Stitching of two ends



Feeding of fabric without crease

Checking defects and final width of the fabric

- Understand and follow the instruction from lot card and programme book.
- Switch ON power and then open compressed air, cooling water valve and thermic oil.
- Check the quality and lot number of the fabric before Loading on the machine
- Transport the fabric to be run, to the inlet feeding unit of calendering machine using hydraulic hand puller or electric truck.
- Stitch the two ends, (ie) one end of the fabric is to be finished and other one leader fabric in the machine.
- Ensuree straightness of fabric without crease.
- Observe the defect in the fabric before and during the process and report to the shift in-charge if any irregularities observed.
- Set all the important parameters in the machine.
- Set the Speed of the machine according to the instructions of supervisor which varies based on the effect of calendaring required.
- Do not allow selvedge folds and improper feeding to the in inlet of the machine.
- Set the temperature of steel roll as per supervisor's instructions (30 – 150 oC), if the temperature is higher, smoothness and luster of the fabric becomes more.

- Check by hand feel the outlet fabric and if it is not matching with the standard specified inform to supervisor.
- Check for various process damages in the finished fabric like stains – dust, chemicals, rust, handling stains, crease, water dropping, oil, grease, etc.
- If the machine is to be stopped for long time, put the leader fabric on machine and cool the calendaring unit immediately without delay.
- Properly batch the outlet fabric without any crease.

Cleaning in calendaring machine:

- Remove regularly accumulated dust and dirt from the machine.
- Clean all the rollers whenever required. Specially clean the cotton roll and plastic roll in every shift.
- Clean the inlet sensors and fabric guide properly.
- Properly clean the seam detector and metal detector.
- Collect all the waste and store them in designated place

6. INSTRUCTIONS DURING SHIFT CHANGING:

Taking charge of duties while starting of shift:

- Come at least 10 - 15 minutes earlier to the work place.
- Meet the previous shift operator and discuss regarding the issues faced by them with respect to the quality or production or spare or safety or any other specific instruction etc.
- Understand the fabric being processed & process running on the machine.
- Ensure technical details are mentioned on the job card & displayed on the machine.
- Check the next batch to be processed is ready near the machine.
- Check the cleanliness of the machines & other work areas.
- Question the previous shift operator for any deviation in the above and bring the same to the knowledge of the shift superior.

Handing over charge at the end of shift:

- Properly hand over the shift to the incoming operator.
- Provide the details regarding fabric quality & the process running on the machine.
- Provide all relevant information regarding the stoppages or breakdown in the machine, any damage to the material or machine.
- Ensure the next lot to be processed is ready near the machine
- Get clearance from the incoming counterpart before leaving the work spot.
- Report to the shift supervisor in case the next shift operator doesn't report for the shift.

- Report to the shift supervisor about the quality / production / safety issues/ any other issues faced in the shift and leave the department only after getting concurrence for the same from supervisor.
- Collect the wastes from waste bags weigh them & transport to storage area.

7. Importance of Health and Safety:

- Use and maintain personal protective equipment such as Hand Gloves, Gum Boots, head cap etc., as specified.
- Never handle chemicals with bare hands
- Report any service malfunctions in the machine that cannot be rectified to the supervisor.
- Store materials and equipment at their designated places.
- Minimize health and safety risks to self and others due to own actions.
- Monitor the workplace and work processes for potential risks.
- Do not carry any metallic parts during machine running as there are chances of fire and damage to machine parts.
- Take action based on instructions in the event of fire, emergencies or accidents and participate in mock drills/ evacuation procedures organized at the workplace as per the organization procedures.