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Presentation on

Business Perspective of Absorbent Cotton for Health & Hygiene

by

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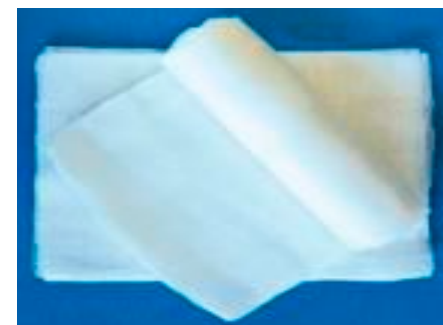
Business Perspective of Absorbent Cotton for Health & Hygiene

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Absorbent Cotton wool

- Absorbent Cotton wool is a **scoured and bleached cotton fibres**
- **Hydrophilic** in character
- Free from **external impurities**
- **Sterile or Non-Sterile**
- Surgical dressings and Personal hygiene



Raw Cotton

Scouring & Bleaching
Process

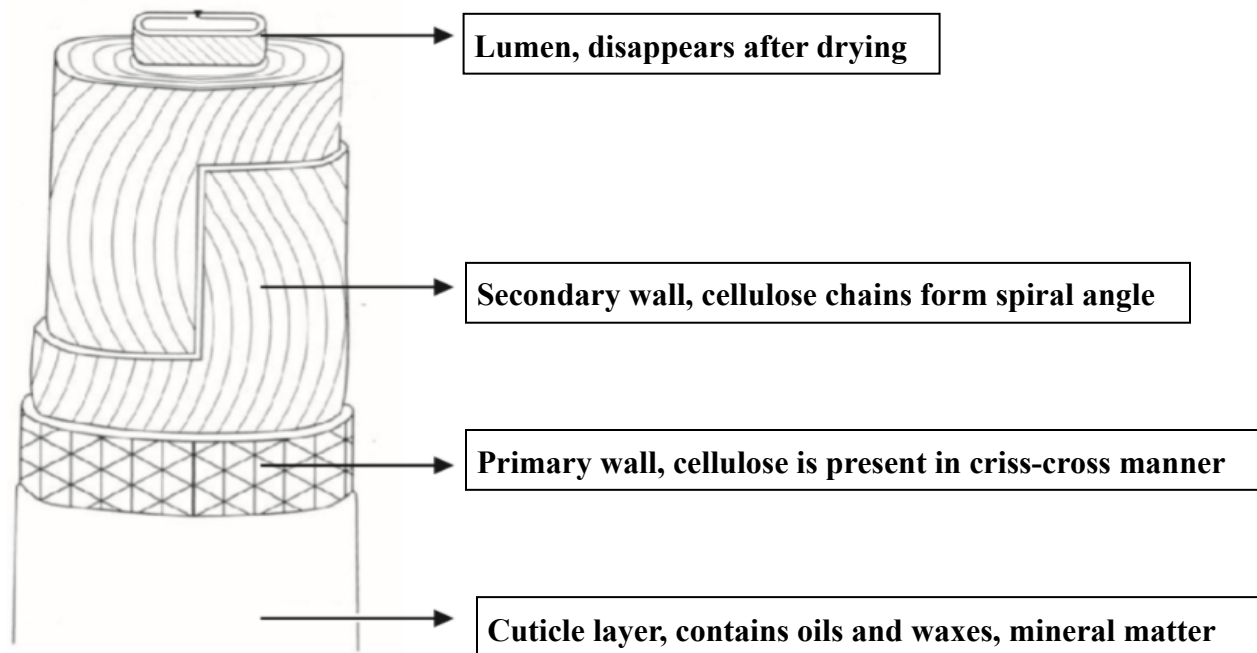


Absorbent Cotton

Cotton fiber and its structure

| Constituent | Cellulose | Protein | Pectin | Wax | Ash | Other substances |
|--------------------------------|-----------|---------|---------|---------|---------|------------------|
| Percentage Weight On dry fiber | 88-94.0 | 1.2-1.9 | 0.7-1.2 | 0.4-0.6 | 0.8-1.4 | 1-1.7 |

Chemical Composition of Cotton



Structure of Cotton Fibre

Requirement of properties to be improved for absorbent cotton

| Nature of Property | Raw Cotton |
|--------------------------|-----------------|
| Ash Content | 1.2% |
| Sinking Time | > 60 seconds |
| Water holding capacity | Practically Nil |
| Water Soluble Substances | 1% |
| Whiteness | Yellowish White |
| Moisture Content | 7.5-8% |

Standard of Absorbent cotton

| | |
|--|---|
| Raw Material | Virgin Cotton/Comber noil |
| Sinking Time/absorbency | < 10 Sec |
| Water Holding Capacity | Not less than 24 times of It's weight in water |
| Ether Soluble Substances | Max 0.50 % |
| Water Soluble Substances/Per 5g | Not more than 0.50% |
| Alcohol Extract | Colorless |
| Sulphate Ash | Max 0.40% |
| Surface Active Substances | Max 2mm |
| Mercury | None when examined under ultraviolet light |
| Odor | Odorless |
| Foreign Matter | Absent |
| Extractable Coloring Matters | Negative |
| Moisture (%) | 8 |

Absorbent Cotton Applications

- Absorbent cotton is used for surgical dressings, cosmetic purposes etc.
- It is also known as Surgical Cotton or Cotton Wool.
- It is mainly used for medical purposes in hospitals, dispensaries and nursing homes to absorb the body fluids.
- Apart from medical purposes absorbent cotton is also used
 - for making conventional type of sanitary napkins or pads.
 - for removing make-up and dirt at beauty parlours, beauty salons,
 - in business organizations and households for sanitary purpose,
 - for padding of clothing items, quilts etc.

Demand of Absorbent Cotton

The demand for Absorbent Cotton is directly proportional to

- population,
 - expansion of public health services,
 - increased income level,
-
- Largest consumer: Government hospitals and Large nursing homes

 - Absorbent/Surgical Cotton Demand (Global) is growing @ 10% per annum

 - Absorbent/Surgical Cotton Demand (India): 2 million bales per year (170 kg)

 - Reason for steady growth rate of Absorbent Cotton
 - more people getting access to basic healthcare facilities,
 - affordable medical facilities as surgeries, transplants etc.,
 - increased awareness towards personal hygiene,
 - spread of education,
 - economic growth of towns and villages,
 - export potential of absorbent cotton.

Raw Material for Absorbent Cotton

- **Short Staple Cotton**

- Preferably non-spinnable cotton
- High micronaire value



- **Comber Noil**

- Comber waste from spinning mills

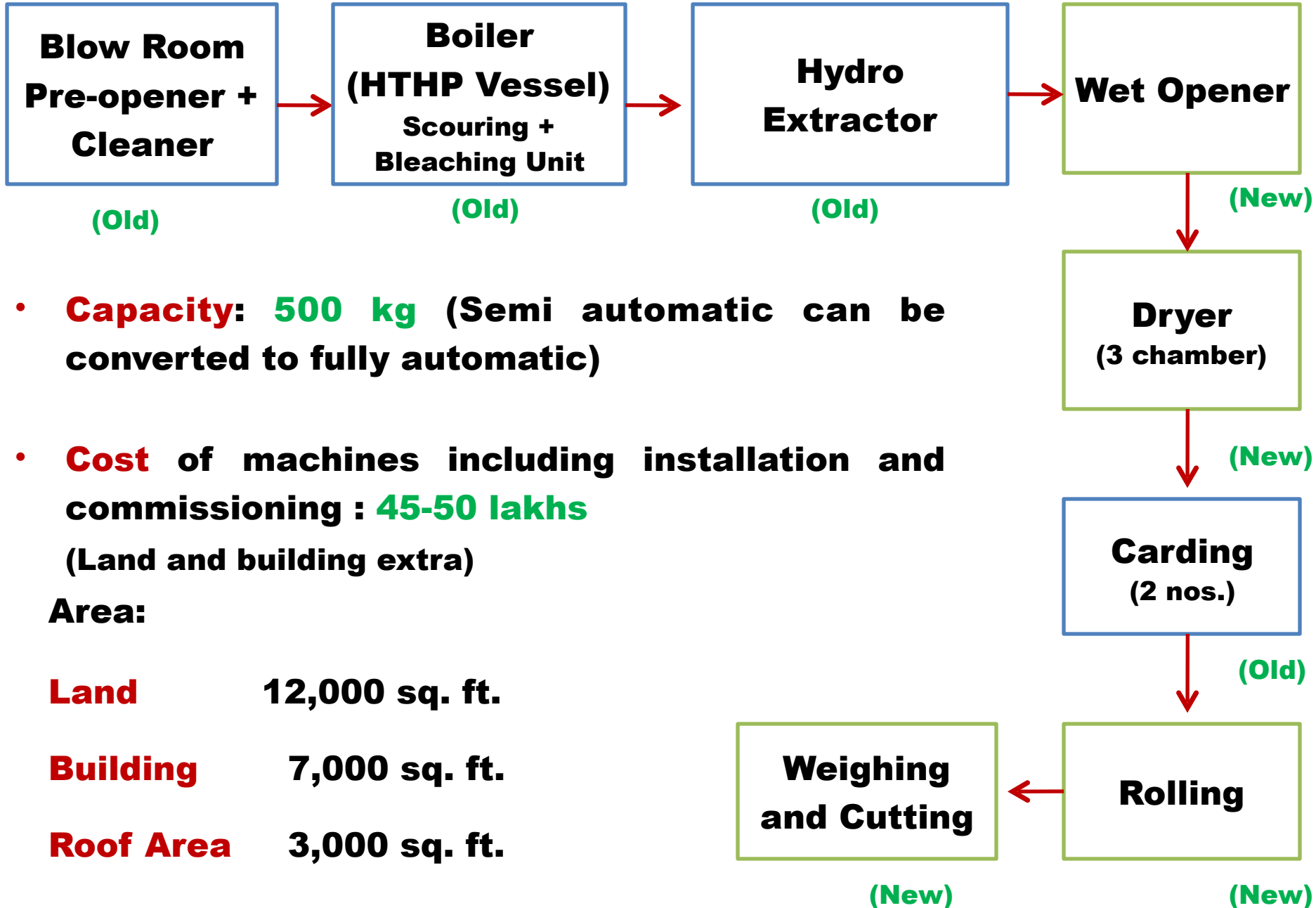


Absorbent Cotton Preparation Process

- i. Bale opening- manual or machine
- ii. Pre-cleaning & opening- cleaner
- iii. Kier/HTHP bleaching (100 °C Temp and 4 bar pressure using wetting agent, NaOH and H_2O_2)
- iv. Neutralization and Hydro extraction
- v. Wet opening
- vi. Drying
- vii. Blow room cum lapper
- viii. Carding
- ix. Rolling Machine
- x. Cutting, weighing & Packaging



Absorbent Cotton Plant



- **Capacity: 500 kg** (Semi automatic can be converted to fully automatic)

- **Cost** of machines including installation and commissioning : **45-50 lakhs**
(Land and building extra)

Area:

Land 12,000 sq. ft.

Building 7,000 sq. ft.

Roof Area 3,000 sq. ft.

Step Cleaner



- = 4 Nose Spike Roll
 - = All Beating Point Zigzag
 - = All Roll Fixing below Segment
 - = All Roll Top must be Dust Cleaner
- Size: 8" w * 9" H, Power 5 Hp
Output: as per man operating
: 3000 kg/day (Approximate)
Weight: 900 to 1200 kg (Approximate)

Cake Maker



- = As per Fabricated Stand with Foundation
- = As per Bucket Size Revolving turntable
- = Hydraulic power pack.

Size: 16" H * 5" W (Approx.)

Power: 7.5 to 10 Hp (Approx.)

Kier Stainless Steel



- = As per production Capacity
- = Closing top power pack
- = Suitable circulation / Turbo pump
- = All Marking scale req. with panel board
- = Require platform
- = Require Crane
- = Require chemical stainless steel tank with
Dosing pump & valve

Centrifuge Hydro Extractor



= 5 to 7.5 Hp motor with panel board

= Inner bucket must be stainless steel

Cake Cutter



= Cover Feeding for Bleaching cake

= One pressing system with timer

= Two roll for cutting bleach cotton with delivery roll & hopper

Wet Cotton Opener



= Conveyer Belt

= Two delivery Roll

= Main Beating Roll

Continuous Dryer



= Continuous conveyer dryer as per production.

= All separate chamber steam pipe line.

= All separate steam marking scale require.

= Conveyer belt moving with panel board.

Blow Room



= L.R. / N.S.E etc.

= 1.5 beating point

= Chain feed or manually

Size: 16" L * 8" W * 14" H
(Approx)

Power: 8 to 15 Hp (Approx)

Weight: 1 to 4 ton (Approx)

Carding



= L.R / Trutzschler etc.

= Chute feed or manual feeding

Size: 12" L * 8" W * 8" H

Weight: 3 to 4 ton.

Power: 7.5 to 12 Hp

= Production: 20 to 25 kg/hour

Rolling Machine



= Gear box chain drive

= Top pressing roll

Size: 16" W * 4" H

Power: 1.5 to 3 Hp

Weight: 300 to 400 kg/hour



Cutting



- = Round blade / Circular cutter
 - = Plain circular blade with grinding attachment
 - = Rolling cotton sliding stick attachment
- Size: 6" W * 4" H.
Power: 1.5 to 2.5 Hp



Zigzag



= 1 to 2.5 Zigzag fold

= Motor with chain drive

Size: 6" L * 4" W * 4" H.

Power: 1.5 H.P. / 960 rpm

Production: as per man operating.



Packing

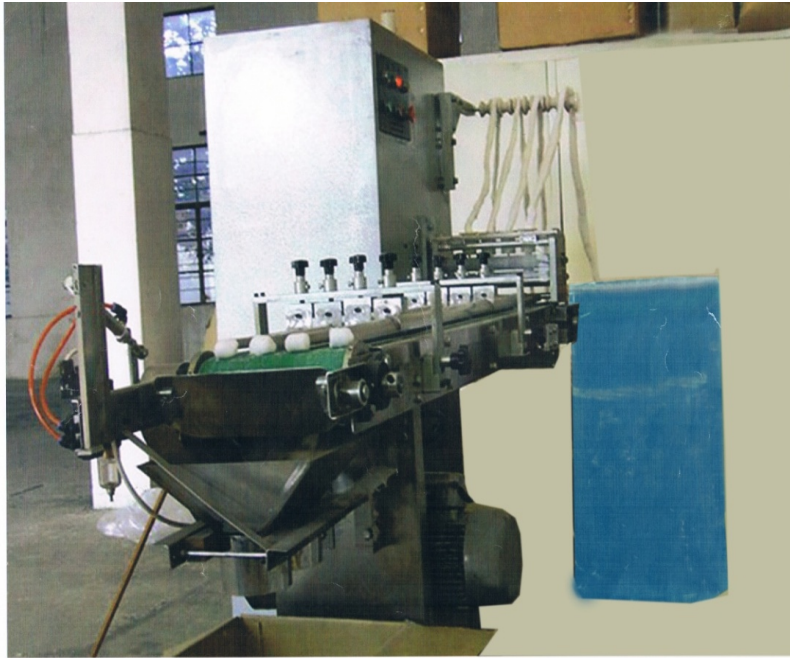


As per Party Demand.

= Company Draft label.

= Plotline bag selling.

Cotton Ball Preparation Machine



Carding machine sliver.
= 300 kg per day production
(Approx).
= 0.2 / 0.3 / 0.4 / 0.5 / 0.6
Making Ball.
= For Cosmetic purpose.



Water

= One kg finished good requires approximately 18 to 22 litres water

= Water pressure 15,000 litres per hour

E.T.P



= Effluent Treatment Plant Required.

= E.T.P Plan Installation as per Pollution Board Rules.

= E.T.P Plan Capacity as per Drain Chemical Water.

Commercial utilization: Absorbent Cotton

| A | Capital Investment (0.5 TPD Capacity) | INR (Rs. in lakh) | USD |
|---|---|-------------------|---------------|
| | Land and Building (Land Area: 1500 sq. m; Building for Machinery: 600 Sq. M; Material storage area:200 Sq. M; Office Building: 300 Sq. M) | 15.0 | 7,692 |
| | Plant and Equipment | 55.0 | 61,538 |
| | Auxiliary and Service Equipment (Electricals and handling tools) | 10.0 | 7,692 |
| | Total investment | 80.0 | 76,923 |
| B | Operational Expenses | | |
| | Raw Material Cost for 1 year (0.5 TPD for 300 days @ Rs. 90,000 per tonne) | 135.0 | 616,153 |
| | Operational cost including Chemical, Repair and Maintenance and other charges (Rs. 40,000/tonne) for 1 year | 60.0 | 276,923 |
| | Overhead cost (Rs. 10,000/tonne) for 1 year | 15.0 | 69,230 |
| C | Gross Annual Income (Rs. 1,65,000/tonne) | 247.5 | 1,315,384 |
| | Net annual income (Rs. 25,000/tonne) | 37.5 | 34,615 |
| D | Payback period: 25.6 months Return on investment : 46.9% [100% capacity] | | |

Building



- = Approval as per Civil Plan
- = 5,000 to 10,000 sq foot as per Production Capacity
- Building Area
- = 14" to 18" Height
- = Open Space as per Requirement
- = 60% Building Top Roof Area
- = 30 to 40 % Building Top P.C.C.
- = Main gate & Author gate & Window as per require
- = In or Exit gate
- = Security Room E.T.C.

Thank You!

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