

# **SURGICAL BANDAGES**

## **1. INTRODUCTION**

The project proposes to produce **Surgical Bandages with** capacity of 6.00 lac meters per annum.

Bandages are used extensively in health care institutions. The uses of bandages range from simple dressing of superficial wounds to holding together fractured bones or body parts for rehabilitation and recovery. Surgical bandage making project can be initiated as small scale with moderate capital investment. The demand of Surgical Bandage is found all throughout the year. Surgical bandage are the products manufactured from white bleached cotton gauge cloth of suitable quality. Surgical bandage come in roll form in length of 3 to 4 meter.

In view of the growth in the health care facilities network, increase in the demand for various medicines and non-medicine items. It has been realized that surgical bandage making project is feasible to start. A wide range of products both medicines and non-drug items such as surgical bandage are required as consumables in hospitals and basic health units.

## **2. PRODUCT AND ITS APPLICATION**

Surgical bandage are the products manufactured from white bleached cotton gauge cloth of suitable quality. Surgical bandage come in roll form in length of 3 to 4 meter. Surgical Cotton also known as absorbent cotton wool or purified cotton is used at large in surgery as a dressing material for burns & wounds as a cotton bedding for maintaining a uniform temperature in inflamed parts and therefore finds applications in hospitals, dispensaries, nursing homes, etc. Good quality absorbent cotton is characterized by its uniform quality.



With the establishment of large number of primary hospitals and rural health centers, the demand for surgical bandages has increased considerably. This item is regulated under the drugs Control Act and a manufacturing license under the provision of the act, will have to be obtained.

A **dressing** is a sterile pad or compress applied to a **wound** to promote **healing** and protect the wound from further harm. A dressing is designed to be in direct contact with the wound, as distinguished from a **bandage**, which

is most often used to hold a dressing in place. Many modern dressings are self-adhesive.

**Wound dressings** help to minimize the risk of infection and protect a wound from bacteria. There are many different types of wound dressings, such as adhesive bandages, non-adhesive bandages, first aid supplies, and scar treatments. They can be categorized by their size, intended use, and the material they are made from.

**Related Categories:** Compression Bandages/Elastic Bandages, Alginate Dressings, Foam Dressings, Hydrocolloid Dressings, Hydrogel Dressings, Transparent Dressings, Medical/Surgical Adhesive Tape, Wound Care, Adhesive Bandages

### **3. DESIRED QUALIFICATION FOR PROMOTER**

The promoter should ideally be having formal qualifications in the field of Pharmacy (Bachelor or Diploma). Further he / she should have experience of working in a unit manufacturing such products

### **4 INDUSTRY OUTLOOK / TREND**

The segment of absorbent and packing gauze surgical dressings is expected to grow worldwide owing to factors such as increasing incidences of road accidents and sports related injuries. Globally raising aging population and the growing prevalence of chronic diseases. In addition, the swift healing times brought about by the usage of wound dressings make them useful during emergency care. The rising incidence of wound infections raises the sale of wound dressings, thus having a positive impact on the market.

### **5 MARKET POTENTIAL AND MARKETING ISSUES, IF ANY**

#### **Growth of Surgical Dressing Market**

Development of new and innovative products will also contribute in driving the market growth in coming years. Geographically, North America and Europe are the leading markets for absorbent and packing gauze surgical

dressings. In Europe, EU-5 countries (Germany, France, U.K., Italy and Spain) offers immense opportunities to companies operating in the absorbent and packing gauze surgical dressings market. However, over the past few years, Asia-Pacific has been the fastest growing region for absorbent and packing gauze surgical dressings market, mainly due to emerging economies of India, China and Taiwan.

The rising healthcare expenditure and growing awareness amongst patients about the benefits of wound dressings will also stimulate the market for wound dressings in the coming years. On the other hand, factors such as the soaring cost of advanced wound dressings may restrain demand within a number of Asian markets, thus having a negative impact on the overall market.

### **Surgical Dressing: Key Players**

The market for absorbent and packing gauze surgical dressings is largely fragmented between domestic and multinational companies. In many Asian countries like India and China, local players supply these products at very low prices than multinationals and thus create intense price war among the players. Smith & Nephew Pty Ltd., Medline Industries, Inc., Covidien Ltd., UDL Laboratories, Inc. and ConvaTec, Inc. have been identified as the major players operating in the absorbent and packing gauze surgical dressings with a global presence.

Surgical cotton industry is mainly limited to small and cottage scale units. Bengal Chemical & Pharmaceutical Works Ltd. is the key manufacturer of surgical cotton and bandages. Absorbent cotton also known as surgical cotton is used mainly for medical purposes. There is an increasing demand for this item in India and has good market possibilities. Absorbent cotton or medical cotton is used by Doctor, Dentists, and Industrial safety organizations in Hospitals and for individuals for first aid and home kits. At present the industry consist of around 185 units in the organized sector hence there is a good scope for new investment

## 6 RAW MATERIAL REQUIREMENTS

The key raw material is either cotton yarn or cotton fabrics. This raw material can be obtained from the textile factories of the Region.

The main raw material required is bleached cotton gauge cloth of suitable quality, conforming to IS-758/1925. The width of cloth ranges from 2.5 to 15 cm and length from 3 to 4 meter. This type of cloth is not being made in the north eastern region and would need to be procured from the Calcutta market. The annual requirement is estimated at 20 lakh meter for 100 per cent capacity utilization (assuming a loss of 10 per cent due to cutting and rejection). The consumables required are brown paper for packing to the extent of about 15,000 meter per year. The brown paper would be available from local market.

A special cotton variety called as Bengal Desi Cotton grown extensively only in India (18 districts near Ganganagar in Rajasthan) and adjoining areas in Pakistan. This is considered ideal for surgical products although not exactly for surgical bandages. Almost all major surgical cotton manufacturers in world look forward to procuring this cotton as it has almost all the characteristics required for good quality surgical cotton like liquid absorbency, fiber quality (strictly 18 inches), minimum wax and micronaire value of 5.

The Central Institute for Cotton Research (CICR) here is now working towards partnering with farmers and absorbent cotton manufacturers for promoting organic desi cotton as raw material.

The CICR has already started producing desi cotton seeds to be distributed to a select group of farmers — who are going to have assured buyers offering good price.

"We have discussed it with many manufacturers. They are ready to pay up to Rs 4,000 per quintal. For now, we will emphasize on the idea in Vidarbha and

parts of Madhya Pradesh where farmers around villages near surgical cotton units will be encouraged to produce organic desi varieties with an assured high price," said CICR director Keshav Kranthi.

One such unit has come up recently near Nagpur. Prakash Rathi, owner of Rathi Chemicals, is partnering in the venture with CICR. The Central Institute for Research in Cotton Technology (CIRCOT), Mumbai, will be another stakeholder in the process of converting raw cotton into finished product.

"As of now, the companies in India are using Bengal Cotton, a desi variety being produced mainly in north-east and Rajasthan, to manufacture surgical cotton. But it requires chemical treatment. What we are looking at is having organic desi varieties that will eliminate the need for chemical treatment. We have certain microbes that can be used," Kranthi said.

Another advantage with desi cotton is its low input cost. "It requires fewer inputs since it has traditionally come to withstand hard Indian conditions," Kranthi said. He says because organic cotton is devoid of chemicals, it is ideally the most-suited cotton for manufacturing absorbent cotton. "And anything organic has a great demand in Europe, so the produce will also have a great export potential," he adds.

During the next planting season, CICR is planning to have 500 hectares of dedicated desi organic area in Vidarbha.

Ideally, surgical cotton requires coarse textured lint with a fibre length of approximately 18 mm so that these can easily be arranged into layers for surgical use. Micronaire is an index of fineness or coarseness of the fibre and the preferred micronaire value for surgical use is 6.5 to 8.0.

"CICR has a rich repository of desi cotton that will be utilized for popularizing this type of cotton. Several varieties like Lohit, LD-133, RG-8, LD-327, DS-21, LD-491, HD-11 have been released by the public sector in the past with fibre quality parameters suitable for surgical cotton,

## 7 MANUFACTURING PROCESS

The process of manufacturing surgical bandages passes through the following stages: -

- Purchasing or weaving the bandage cloth
- Clearing and removing of organic impurities
- Washing and bleaching
- Drying and calendaring
- Rolling and cutting and
- Packing.

The main raw material for surgical bandage making is bleached cotton gauge cloth of suitable quality, conforming to IS-758/1925. The width of cloth ranges from 2.5 to 15 cm and length from 3 to 4 meter.

The cloth which is used to make Surgical Bandage is to be sourced from local market.

At first you have to make the cloth germ-free with some process. Now roll up the cloth. In the indicated place of the machine. You have to cut the cloth in indicated size you want with Cutting Machine. Now start the machine. It needs  $\frac{1}{2}$  hp motor to operate the Cutting Machine. It needs 1 hp motor and 220 volt to operate the Surgical Bandage Making Machine.

## 8 MANPOWER REQUIREMENTS

Sr. No.	Designation	Number	Approx. Salary (Rs. Per month)
1	Manager	1	12000
2	Chemist	1	10000
3	Supervisor	1	10000
4	Storekeeper	1	7000
5	Sales person	1	9000
6	Clerk - cum - Accountant	1	6000
7	Skilled Worker	3	15000
8	Unskilled Worker	3	9000
	Sub total		78000

	Perks @ 15 %		11700
	<b>Total</b>		89700

## 9 IMPLEMENTATION SCHEDULE

Sr. No	Activity	Time
1	Preparation of Project Report	Six weeks
2	E M Registration & approval from Drug Control Authority	One month
3	Financial/Loan from Banker or Financial Institutions	Two months
4	Power connection/Building construction Six months	One month
5	Machinery procurement & Trial run.	Two months
6	Recruitment of Staff & Labour	One month
7	Actual commercial production	One month

## 10 COST OF PROJECT

The Total Cost Of Project Is Estimated As Below:

Sr. No	Component	Particulars	Cost ( Rs. Lakhs)
1	Land	300 @ Rs. 600/-	1.80
2	Building	150 Sq. mtrs @ Rs. 2500/	3.75
3	Plant & Machinery	As per details	3.50
4	Other Assets		0.50
5	P & P Expenses		0.50
6	Contingencies		0.70
7	WC Margin ( 1 month basis)		1.10
	<b>Total</b>		<b>11.85 lacs</b>

## 11 MEANS OF FINANCE

- Term Loan : Rs.7.50 lacs
- Promoter own contribution :Rs. 4.35 lacs

## 12 WORKING CAPITAL CALCULATION

Particulars	Duration	Estimated
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		<b>cost ( Rs. Lacs)</b>
Raw materials/ Packing materials	1 month	<b>1.00</b>
Working expenses	1 month	<b>0.50</b>
Finished goods	15 days	<b>1.00</b>
Receivable	15 days	<b>0.80</b>
	Total	<b>3.30</b>
Margin for WC @ 30 %		<b>1.10</b>

### 13 LIST OF MACHINERY REQUIRED & SOURCES

The following equipment is recommended for the manufacture of surgical dressings other than Absorbent Cotton Wool, namely,

- Rolling machine.
- Trimming machine.
- Cutting equipment. 55
- Folding and pressing machine for gauze.
- Mixing tanks for processing medicated dressing.
- Hot air dry oven.
- Steam sterilizer or dry heat sterilizer or other suitable equipment.
- Work tables / benches for different operations.

<b>Sr. no.</b>	<b>Machine</b>	<b>Number</b>	<b>Approx. Cost ( Rs. Lacs)</b>
1	Cloth winding M/C	2	1.00
2	Roll & Bandage making M/C	2	0.20
3	Bandage Printing M/C	1	0.50
4	Baby Electric Boiler	1	0.60
5	Autoclave	1	0.30
6	Quality control( QC) and Testing equipments	-	0.30
7	Accessories/other items		0.20
8	Sub total		3.10
9	Add installation, taxes, etc. @ 15% Total		3.50

#### Indicative sources:

- Ganesh Engineering,  
Udhna,

- Surat
- b. Hi- Tech Engineering,  
Ganapathy ,  
Coimbatore,  
Tamil Nadu
- c. Swati Industries,  
Rithala,  
Delhi

## 14 PROFITABILITY CALCULATIONS

- ▯ Installed Capacity : 6.00 lac meters TPA
- ▯ Total Sales turnover @ 70 % and ( assumed)Rs.6.50 per meter/- :  
27.30 lacs
- ▯ Cost of production & other expenses: 25.00 (approx.) lakhs

### Profitability projections (Indicative only)

Particulars	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
<b>Capacity utilisation (%)</b>	<b>60</b>	<b>75</b>	<b>80</b>	<b>80</b>	<b>80</b>
Production ( lakh meters)	4.20	4.50	4.80	4.80	4.80
Sales	23.50	29.00	31.00	31.00	31.00
Expenses	15.00	19.00	20.00	20.00	20.00
Gross profit	8.50	10.00	11.00	11.00	11.00
Profit to Sales (%)	30.00	32.00	34.00	34.00	34.00

### Key Assumptions and The basis of profitability calculation:

As mentioned above, The Unit will have capacity of 6.00 lac meters TPA of **surgical bandages**. The capacity build up is taken considering the sales related from OEM/ Retail network that is built up by the entrepreneur based on his prior experience in the industry.

The sales prices of **Surgical bandages** vary. Accordingly an average sales price of Rs. 6.50 per meter has been assumed. The cost of production, inclusive of major cost heads such as raw materials, labour & power has been considered based on prevailing industry standards and assumed @ 65%.

On indicative basis, power Costs are considered at Rs 5/- per Kwh and fuel cost is considered at Rs. 50/- to 65 per litre. The depreciation of plant is taken at 10-12 % and Interest costs are taken at 12 % depending on type of industry. All these are wherever applicable.

It may be kindly noted that basis / assumptions for such kind and size of the projects in a profile can be on indicative basis only. At the same time it does provide a reasonably accurate scenario.

## 15 BREAKEVEN ANALYSIS

□ <b>Variable Cost: (Rs in lakh)</b>	
□ Raw material/ packing materials& printed levels	10.00
□ Utilities	0.50
□ Selling expenses	3.00
□ <b>Total</b>	13.50
□ <b>B. Semi-Variable Cost:</b>	
□ Wages & Salaries	5.00
□ Repair & Maintenance	0.15
□ Administrative overhead	0.30
□ Depreciation	0.70
□ Interest	1.60
□ <b>Total</b>	7.75
□ C. Sales Realization Rs. 27.30.00 lakhs	
□ D. Contribution Rs. 19.00 lakhs	

- **BEP: 51 %**

## 16 STATUTORY/ GOVERNMENT APPROVALS

This item is covered under Drug Control Act. Hence, it should be manufactured to meet its requirements.

The Drugs and Pharmaceutical Industry in general is highly regulated in India. Regulatory authorities at the Central level and the State level monitor the same.

At the Central level, the Central Drugs Standard Control Organisation (CDSCO), Ministry of Health & Family Welfare, Government of India is the apex organisation. At the state level the Food and Drugs Control Authority (FDCA) is the regulatory authority.

MSME & GST registration, IEC Code for Export of end products and local authority clearance may be required for Shops and Establishment, for Fire and Safety requirement and registration for ESI, PF and Labour laws may be required if applicable. And promoter has to take approval from Pollution Control Board.

## **17 BACKWARD AND FORWARD INTEGRATION**

As backward integration, Entrepreneur may think of going for the production of cotton cultivation

## **18 TRAINING CENTERS/COURSES**

Training and short term courses may be availed from the Institutions such as KVIC and similar centers. Also NIPER , B V Patel PERD Centre and Pharmacy colleges. Also EDP centers.

Udyamimitra portal ( link : [www.udyamimitra.in](http://www.udyamimitra.in) ) can also be accessed for handholding services viz. application filling / project report preparation, EDP, financial Training, Skill Development, mentoring etc.

Entrepreneurship development programs help to run businesses successfully and are available from Institutes like Entrepreneurship Development Institute of India (EDII) and its affiliates all over India.

**Disclaimer:**

Only few machine manufacturers are mentioned in the profile, although many machine manufacturers are available in the market. The addresses given for machinery manufacturers have been taken from reliable sources, to the best of knowledge and contacts. However, no responsibility is admitted, in case any inadvertent error or incorrectness is noticed therein. Further the same have been given by way of information only and do not carry any recommendation.

Source:- Udyami Mitra/Sidbi