

PROJECT PROFILE ON PROTECTIVE GOWNS/APRONS

Sl No	Description	
1	Product	Manufacture of Protective Gowns and Aprons
2	Quality Standards	BIS IS 4501 : 1981(R2006) ASTM F2407 ASTM F2407
3	Production Capacity /Value Per annum	Gowns: 1,25,000 pcs Value Rs. 250/ lakhs Apron: 1,35,200 pcs Value: Rs. 67.60 lakhs
4	Prepared by	Branch MSME- Development Institute, ITANAGAR Arunachal Pradesh

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Introduction

About medical gowns

Gowns are examples of personal protective equipment used in health care settings. They are used to protect the wearer from the spread of infection or illness if the wearer comes in contact with potentially infectious liquid and solid material. They may also be used to help prevent the gown wearer from transferring microorganisms that could harm vulnerable patients, such as those with weakened immune systems. Gowns are one part of an overall infection-control strategy.

A few of the many terms that have been used to refer to gowns intended for use in health care settings, include surgical gowns, isolation gowns, surgical isolation gowns, nonsurgical gowns, procedural gowns, and operating room gowns.

In 2004, the FDA recognized the consensus standard American National Standards Institute/Association of the Advancement of Medical Instrumentation (ANSI/AAMI) PB70:2003, "Liquid barrier performance and classification of protective apparel and drapes intended for use in health care facilities." New terminology in the standard describes the barrier protection levels of gowns and other protective apparel intended for use in health care facilities and specifies test methods and performance results necessary to verify and validate that the gown provides the newly defined levels of protection:

- Level 1: *Minimal risk*, to be used, for example, during basic care, standard isolation, cover gown for visitors, or in a standard medical unit
- Level 2: *Low risk*, to be used, for example, during blood draw, suturing, in the Intensive Care Unit (ICU), or a pathology lab
- Level 3: *Moderate risk*, to be used, for example, during arterial blood draw, inserting an Intravenous (IV) line, in the Emergency Room, or for trauma cases
- Level 4: *High risk*, to be used, for example, during long, fluid intense procedures, surgery, when pathogen resistance is needed or infectious diseases are suspected (non-airborne)

Regardless of how the product is named (that is, isolation gown, procedure gown, or cover gown), when choosing gowns, look for product labeling that describes an intended use with the desired level of protection based on the above risk levels.

Surgical Gowns

A surgical gown is regulated by the FDA as a Class II medical device that requires a 510(k) premarket notification. A surgical gown is a personal protective garment intended to be worn by health care personnel during surgical procedures to protect both the patient and health care personnel from the transfer of microorganisms, body fluids, and particulate matter. Because of the controlled nature of surgical procedures, critical zones of protection have been described by national standards. As referenced in Figure 1: the critical zones include the front of the body from top of shoulders to knees and the arms from the wrist cuff to above the elbow. Surgical gowns can be used for any risk level (Levels 1-4). All surgical gowns must be labeled as a surgical gown.

Surgical Isolation Gowns

Surgical isolation gowns are used when there is a medium to high risk of contamination and a need for larger critical zones than traditional surgical gowns. Surgical isolation gowns, like surgical gowns, are regulated by the FDA as a Class II medical device that requires a 510(k) premarket notification. All areas of the surgical isolation gown except bindings, cuffs, and hems are considered critical zones of protection and must meet the highest liquid barrier protection level for which the gown is rated. All seams must have the same liquid barrier protection as the rest of the gown. Additionally, the fabric of the surgical isolation gown should cover as much of the body as is appropriate for the intended use.

Non-Surgical Gowns

Non-surgical gowns are Class I devices (exempt from premarket review) intended to protect the wearer from the transfer of microorganisms and body fluids in low or minimal risk patient isolation situations. Non-surgical gowns are not worn during surgical procedures, invasive procedures, or when there is a medium to high risk of contamination.

Like surgical isolation gowns, non-surgical gowns should also cover as much of the body as is appropriate to the task. As referenced in Figure 2, all areas of the non-surgical gown except bindings, cuffs, and hems are considered critical zones of protection and must meet the highest liquid barrier protection level for which the gown is rated. All seams must have the same liquid barrier protection as the rest of the gown.

SURGICAL APRON

(Protection for surgeons and midwives)

The PE apron consists of fluid resistant, multi usable plastic material. The upper part is a loop to hang around the neck and two straps to be tied up around the waist. PE-aprons are made of very resilient PE-foil, making these aprons especially resistant to tensile strains. They are equipped with a hang-on hole so they can simply be hanged within the entrance area of Hospital. The aprons will not stick together upon removal thanks to their special treatment; this ensures that single aprons are separately removable.

Standards for Gowns/Apron

IS 4501 : 1981(R2006) and ASTM F2407 ASTM F2407

Labeling that shows a product has been tested to and meets appropriate performance standards for Gown and Apron.

Market demand

Due to Corona crisis across the world the demand of mask and other health care product requirements are increasing every day. And at present situation India needs at least 20 crores of Mask and 2 Crore of PPP kit (Consist of Apron ,Gown hand gloves and shove covers) per day but manufacture in the line of activities are very limited. And in Tamildadu only few suppliers are manufacture of this kind of products and in order to meet the present market situation there is great scope in the proposed activities

Manufacturing Methods

Non woven Spun bond Fabric are obtained from the manufacture and cut into required sizes and get finished products by using automatic ultrasonic sealing machine /Power sewing machine

ENERGY CONSERVATION:

General precautions for saving electricity are followed by the unit by providing energy meter. These products are low energy consumption. Thus considerable energy could be saved during manufacturing activities

Electrical HP Details:

Sl .No	Name of the Machine	H.P Connected
1	Non Woven Semi Automatic Plant & Machineries	10
Total H.P Connected		10

Basis and presumption of the project:

The process of manufacture is on the basis of Double shift eight hours per shift with three hundred working days in a year.

To achieve full plant capacity it requires three month trial production

Labor and wages mentioned in profile are as per prevailing local rates.

Interest rate at 12.% considered in the project

However the rate of interest may be varying while implement

The Promoter contribution will be 5% of the total project cost under the PMEGP Scheme. (Special category)

FIXED CAPITAL:

Land & Building: 3000 sq.ft Rented

Machinery and Equipment:

S.no	Descriptions	Nos	Value Rs.
1	Power stitching machine	10	2,50,000
2	Ultrasonic manual sealing machine	1	2,25,000
3	Ultrasonic manual attachment machine	1	2,00,000
4	Cutting table , roller stand and end cutting machine	1 set	2,00,000
5	Sterilization Machine –Bed type	1	9,00,000
6	Wooden furniture’s	LS	50,000
7	Computer and printers internet device and office furniture’s	LS	1,50,000
	Total		19,75,000
	GST IN 18%		3,55,500
	Total		23,30,500

Total plant & machineries’ **Rs. 23,30,500**

Total fixed cost: **Rs; 23,30,500**

Recurring Expenditure (Per Month):

a) Raw Material per Month:

S.n	Description	Qty	Rate Rs	Amount Rs
1	Melt blown Spun bond non woven Fabric	10 MT	200 per kg	20,00,000
			Total	20,00,000

b) Salaries & Wages Per Month:

S.no	Designation	No	Salary	Amount Rs.
1	Production Manager	1	20,000	20,000
2	Skilled workers/Tailors	10	15,000	1,50,000
3	Un skilled workers	3	8,000	24,000
4	Office assistant	1	10,000	10,000
	Total	15		2,04,000

C) Utilities per Month:

S.no	Description	Amount Rs.
1	Power 10 HP 1300 Units@ Rs. 7/ per Unit	9,100
	Total	9,100

d) Other Expenses Per Month:

S.no	Description	Amount Rs.
1	Rent	12,000
2	Postage and stationery	5,000
3	Repairs and maintenance	500
4	Traveling and transportation	5,000
5	Insurance	500
	Total	23,000

Recurring Expenditure Per Month:

$$a + b + c + d = \text{Rs: } 22,36,100$$

Recurring expenditure per year: Rs. 2,68,33,200

Working capital assessment

S.n	Description	Amount Rs
1	Raw Material (Required for two weeks)	1,14,500
2	Work in progress (Required for one month)	47,480
3	Finished Goods (Required for one week)	42,850
4	Sundry Debtors (Required for two weeks)	72,144
	Total	25,00,000

Other Financial Assistance

Rs.

Total Project Cost

b. Plant & Machinery	23,30,500
c. Working capital	25,00,000
Total	48,30,500

Means of Finance

Total Project cost	48,30,500
Promoter contribution 5 %(-)	<u>2,41,525</u>
Total	45,88,975

Cost of Production Per Annum :

Rs.

S.n	Description	Amount
1	Total recurring cost	2,68,33,200
2	Interest on total investment @12.%	5,50,677
3	Total Depreciation on Machinery @10%	2,33,050
	Total	2,76,16,927

Turnover Per Annum:

S.n	Description	Amount
1	Gowns : 1,25,000 pcs @Rs. 200 /per pcs.	2,50,00,000
2	Apron : 1,35,200 pcs @ Rs. 50/ per pcs	67,60,000
	Total	3,17,60,000

Profit Per Annum :

$$\begin{aligned} & \text{Turnover} & - & \text{Cost of Production} \\ & 3,17,60,000 & - & 2,76,16,927 \\ & & = & \mathbf{41,43,073} \end{aligned}$$

$$\text{Percentage of profit on sales} = \frac{\text{Profit/annum} \times 100}{\text{Turnover}}$$

$$\begin{aligned} & = \frac{41,43,073 \times 100}{3,17,60,000} \\ & = \mathbf{13.04\%} \end{aligned}$$

$$\begin{aligned} \text{Rate of Return} & = \frac{\text{Profit/annum} \times 100}{\text{Total Capital investment}} \\ & = \frac{41,43,073 \times 100}{48,30,500} \\ & = \mathbf{85.76 \%} \end{aligned}$$

Break Even Analysis

Fixed Expenditure per annum :

Rs

a	Total Deprecation	2,33,050
b	Interest on Investment	5,50,677
c	Insurance / Rent	12,500
d	40% of Salary	97,92,00
e	40% of other expenditure and Utilities excluding Insurance/Rent	96,480
	Total	18,71,907

Profit per annum = 41,43,073

Breakeven Point:

$$\begin{aligned} & \text{Fixed Exp / annum X 100} \\ & \text{-----} \\ & \text{Fixed Exp / annum + Profit /per annum} \\ & = \frac{18,71,907 \text{ X100}}{60,14,980} \\ & = \mathbf{31.12 .\%} \end{aligned}$$

Raw materials Suppliers

Sl No	Name and Address
1	M/s. Adimangala Fabric 8C/6,New Ramnad Road,,Madurai, Navarathinapuram, Madurai-625009, Tamil Nadu, India
2	M/s. Texbond Nonwovens T2 & T4, K.G Plaza, 41-44 General Patters Road, Chennai – 600002, Tamilnadu
3	M/s. Sincera No:111A,2 nd Floor, Mount View Building, Mound Road, Guindy, Chennai-600032
4	M/s. Jayashree Spun bond NO 42 Old Kuyavar Palayam Road, Munichalai Road, Madurai - 625009, Near Indian Oil Petrol Bunk (Map)

Plant and Machinery Suppliers

Sl No	Name and Address
1	M/s. KP Tech Machine (India) Private Limited K-209, 2nd Floor, Vishala Land Mark, S. P. Ring Road, Nikol, Ahmedabad - 382350 , Gujarat
2	M/s. Uplifto Green Caaar Products No: 212/3, Tharaipakkam Road, Next to Murugan tample , Gerugambakkam, Chennai 600122
3	M/s. Sheetal Enterprises, LL 2, Avani Plaza, Nr. Satellite tower, Satellite, OPP H P Petrol Pump , Premchandnagar Road,, Ahmedabad, Gujarat 380015

