

SURGICAL FACE MASK

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| QUALITY AND STANDARDS | : IS9473:2002 |
| PRODUCTION CAPACITY | : 30,00,000 Nos. per annum. |
| Value | : Rs. 1,20,00,000/- |
| PROJECT COST | : Rs. 30,91,000/- Fixed Capital - Rs. 11,00,000/- Working Capital - Rs. 19,91,000/- |
| EMPLOYMENT | : 7 |
| MONTH AND YEAR OF PREPARATION | : June, 2020 |
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1. INTRODUCTION

Surgical face masks are worn by health care professionals during surgery or while tending to patients in order to avoid contact with bacteria shed in the form of liquid droplets and aerosols from the mouth and nose or infectious blood and body fluids. They are made mostly from non-woven fabric and are available in the two-layer and three-layer form. Advantages of non-woven fabrics over woven fabric in filtration are higher air permeability, higher bacterial filtration efficiency, no yarn slippage and low manufacturing cost. The non-woven technology guarantees better barrier properties than cotton, polyester or even more advanced woven products

2. MARKET POTENTIAL

Surgical face masks are used in operation theatres and every area of health care that requires patient inspection. Rise in awareness regarding airborne infections has led to an increase in usage of surgical face masks across the world. The usage of surgical face masks have increased among the general public owing to the rise in outbreaks of airborne diseases in recent times. The inevitable use of surgical face masks are expected to propel the global surgical face masks market.

3. BASIS AND PRESUMPTIONS

- i. It is presumed that the unit will run 8 hours (single shift) per day and 300 days in a year.
- ii. The rate of interest has been taken 13% on an average both for fixed investment and working capital.
- iii. To achieve full production 1 to 2 months trial production required.
- iv. The salaries and wages, cost of raw material, utilities, rent of the shed etc. are based on prevailing rates in and around local region at the time of preparation and are subject to necessary changes from time to time based on local conditions.

4. IMPLEMENTATION SCHEDULE

The approximate time required for various activities is given below. However, it may vary from place to place depending upon the local circumstances and enthusiasm of the entrepreneur:

| Name of Activity | Period |
|---|---------------|
| Scheme preparation | 2 weeks |
| Sanction of loan | 2-3 months |
| Placement of orders for delivery of machinery | 1 month |
| Installation of machinery | 2 weeks |
| Recruitment of staff and workers | 2 weeks |
| Trail Run | 2 weeks |

Due to overlapping of some activities, normally 2-3 months are required to implement the project.

5. TECHNICAL ASPECTS

5.1. Process of Manufacturing

The typical material used to manufacture surgical face masks are polypropylene either spunbond or melt blown. First Layer of spunbond polypropylene has a density of 18 GSM to 25 GSM, usually of blue, green, pink or white, colour. The second layer uses a filtering material which's a melt-blown fabric of 25 GSM for normal. The third layer is the white non-woven fabric of 18 GSM to 25 GSM density. The outer layer is a hydrophobic layer that can repel water, blood and body fluids, the middle filter layer is designed to filter bacteria and it's the most important layer and lastly, an inner hydroponic layer which can absorb water, sweat and spit. Masks are made on a machine line that assembles the nonwovens from bobbins, ultrasonically welds the layers together, subsequently ear loops are stamped with the masks. The surgical face masks are made in different sizes like 17.5 X 9.5 cm for adult, 14.5 X 9.5 cm for child use and 12 X 7 cm for infants.

5.2. Quality Control and Standards

3 Ply Surgical Face Mask has to comply with IS9473:2002.

5.3. Production Capacity

This scheme envisages manufacturing of 30,00,000 Nos. of 3 Ply Surgical Face Mask per annum.

6. FINANCIAL ASPECT

6.1. Fixed Capital

6.1.1. Machinery and Equipments

| Description | Rate (Rs.) | Nos. | Total Price (Rs.) |
|---|------------|--------------|-------------------|
| Semi-automatic Surgical face mask making machine (10 HP), along with Pneumatic Ear Loop Fixing Machine (3 HP) | 9,00,000 | 1 | 9,00,000 |
| Packing Machine / auxiliary items | | | 50,000 |
| | | Total | 9,50,000 |

Electrification and installation Rs. 1,00,000

Office equipments and furnitures (L.S.) Rs. 30,000

Pre-operative expenses Rs. 20,000

Total Fixed Capital Rs. 11,00,000/-

6.2. Working Capital (per annum)

6.2.1. Land & Building

| Building on Rent | Rent per month (Rs.) | Amount (Rs.) |
|---|----------------------|--------------|
| Covered area for production, office, stores etc. 1500 sq. feet | 10,000 | 1,20,000 |

6.2.2. Personnel

| Description | Nos. | Salary/month (Rs.) | Total (Rs.) |
|-----------------|------|--------------------|------------------|
| Supervisor | 1 | 20,000 | 2,40,000 |
| Skilled Workers | 2 | 13,000 | 3,12,000 |
| Helpers | 4 | 11,000 | 5,28,000 |
| Total | | | 10,80,000 |

6.2.3. Raw Material

| Description | Quantity | Rate (Rs./Unit) | Total (Rs.) |
|--|----------------|-----------------|------------------|
| 25 GSM Spunbond Hydrophobic Polypropylene Fabric | 3,000 kg | 142 | 4,26,000 |
| 25 GSM Melt Blown Polypropylene Fabric | 3,000 kg | 1,200 | 63,00,000 |
| 25 GSM Spunbond Polypropylene Fabric | 3,000 kg | 135 | 4,05,000 |
| Plastic Nose Wire | 5,50,000 meter | 1.40 | 7,70,000 |
| Ear loop | 9,50,000 meter | 0.80 | 7,60,000 |
| Packing Material @ Rs. 5 for pack of 100 masks | | | 1,50,000 |
| Total | | | 88,11,000 |

6.2.4. Utilities

Electricity charges: @ Rs. 10,000/- per month **Rs. 1,20,000**

6.2.5. Other Contingent Expenses **Rs. 60,000**

6.2.6. Total Recurring Expenditure **Rs. 1,01,91,000/-**

6.2.7. Working Capital requirement:

| Working Capital | | Amount (Rs.) |
|-----------------|---------|------------------------|
| Raw Material | 1 Month | 7,34,250 |
| Finished Goods | 2 Weeks | 4,07,640 |
| Receivables | 1 Month | 8,49,250 |
| Total | | 19,91,140 |
| Say | | Rs. 19,91,000/- |

6.3. Total Capital Investment

| | |
|-----------------|------------------------|
| Fixed Capital | Rs. 11,00,000 |
| Working Capital | Rs. 19,91,000 |
| Total | Rs. 30,91,000/- |

7. FINANCIAL ANALYSIS

7.1. Cost of Production (per annum)

| S.No. | Description | Amount (Rs.) |
|--------------|---|----------------------|
| 1 | Total Recurring Cost per year | 1,01,91,000 |
| 2 | Total Depreciation (Machinery & Equipment @ 15%, furniture and fittings @ 10%) | 1,45,500 |
| 3 | Interest on Total Capital Investment @ 13% | 4,01,830 |
| Total | | 1,07,38,330/- |

7.2. Turnover (per annum)

| S. No. | Item | Qty. | Rate (Rs./Nos.) | Value (Rs.) |
|--------------|--------------------------|-------------------|--------------------|----------------------|
| 1 | 3 Ply Surgical Face Mask | 30,00,000 Nos. | 4 | 1,20,00,000 |
| Total | | | | 1,20,00,000/- |

7.3. Net Profit (per annum)

= Turnover - Cost of Production
= Rs. 1,20,00,000 - 1,07,38,330
= **Rs. 12,61,670/-**

7.4. Net Profit Ratio

$$\begin{aligned} &= \frac{\text{Net profit per year}}{\text{Turnover per year}} \times 100 \\ &= \frac{12,61,670}{1,20,00,000} \times 100 \\ &= 10.5 \% \end{aligned}$$

7.5. Rate of Return

$$\begin{aligned} &= \frac{\text{Net profit per year}}{\text{Total Capital Investment}} \times 100 \\ &= \frac{12,61,670}{30,91,000} \times 100 \\ &= 40.8 \% \end{aligned}$$

7.6. Break-even Point

| S.No. | Description | Amount (Rs.) |
|-------|---|--------------|
| 1 | Fixed Cost | 17,47,330 |
| 2 | Variable Cost | 89,91,000 |
| 3 | Contribution (Turnover - Variable Cost) | 30,09,000 |

B.E.P

$$\begin{aligned} &= \frac{\text{Fixed Cost}}{\text{Contribution}} \times 100 \\ &= \frac{17,47,330}{30,09,000} \times 100 \\ &= 58.1 \% \end{aligned}$$

Addresses of Machinery Suppliers

1. M/s S. K. Machines,
No. 166, Savitri Nagar, Saravanampatti, Vinayagapuram, Coimbatore

Raw Material Suppliers

1. M/s Abhiteja Industries, No. 3, 10th Street, Kandaswamy Nagar,
Near Telephone Exchange, Maduravoyal, Chennai
2. M/s Jayashree Spun Bond,
No. 42, Old Kuyavarpalayam Road, Madurai
3. M/s Placon Filters Pvt Ltd.,
No. 306, GST Road, Chromepet, Chennai
4. M/s Sevvel International,
38/40 Offer Nagar, 2nd Street, Gandhinagar Post, Avinashi Road, Tiruppur
5. M/s Shubh Swasan (I) Pvt Ltd.,
No. 9/32, Branson Garden Street, Kilpauk, Chennai
6. M/s Vaishnavi Braiding Company,
No. 150/70, Singanna Chetty Street, Chintadripet, Chennai
7. M/s Malabar Cotton,
Canopy House, BTM 2nd Stage, Bengaluru
8. M/s Sri Karpaga Vinayagar Screen Printing,
28A/99, 2nd Street, Khanpalayam, Near Kamarajar Salai, Madurai