

## **P.P. ROPES**

### **1. INTRODUCTION**

Plastic fibres are produced in our country through conventional process which needs huge investment in plant and machinery. Wherever application of yarn does not require finer denier, the new technology i.e. the film fibrillating technology can be used to produce medium and heavy duty yarn with less investment. Pattern fibrillation is used in Europe and America for the manufacture of HDPE/PP Ropes for versatile applications. This technology is not available in our country.

### **2. MARKET POTENTIAL**

Fibrillated Tapes/Ropes are having wide applications. Therefore, it is replacing conventional and costly materials. There is huge demand from abroad especially for quality ropes. In our country there are a few manufacturers and hardly able to meet the export demand. In this plant HDPE/PP Rope will be manufactured to cater to the demand from Shipping/Fishing Industry. Apart from consumer market, there is good demand for HDPE Rope from Middle East, Dubai, Saudi and African Countries. In our country, there is good market for PP Ropes and scope for export to USA, Middle East and European Countries.

Apart from Ropes, other items can also manufactured with the help of attachment/ equipment. There is good demand for these products such as –

- (a) Stitching yarn can be sold in large quantity for Fertiliser Companies and other woven sacks manufacturers export from captive consumption. It can also be used as industrial Sewing Thread for stitching of upholstery, shoes and leather products.

- (b) Carpet Backing Yarn made from PP Fibrillated tapes is being used world over instead of Jute Carpet Backing Yarn because of various advantages. In view of this there is good demand for Exports of PP Fibrillated carpet backing yarn.

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- (c) India has a very good market for Fishing Twines. PP is light in weight, does not absorb water and is fungus free. Therefore, Fishing Twines made from PP has wide scope.
- (d) PP Fibrillated yarn is also used as cable filling yarn (Cable Fillers) because of its light weight and high tensile fibre quality. Telecommunication cables are strengthened with these tapes.
- (e) It is also used as Synthetic Grass for making Synthetic Grass Carpet/Lawns with tufting process.
- (f) Other applications are Industrial Filters, Table or Floor Mating Fabric, Fancy Yarn, Ultra Violet Display Card with inside core of fibrillated tapes etc.

### **3. BASIS & PRESUMPTIONS**

- (i) The output capacity is taken as 250 Kgs/hr. The unit will work at 20 hrs. per day for 25 working days in a month and 300 days in a year. The output capacity may vary from machinery to machinery and the cost of machinery may also vary from supplier to supplier.
- (ii) The time period for achieving the full envisaged capacity utilisation is six months
- (iii) The labour wages are as per the prevailing rates in the market

- (iv) The rate of interest for fixed and working capital is taken as 12 per cent
- (v) The margin money requirement for this project is 30 per cent
- (vi) The pay back period of this project is 5 years
- (vii) The rate of land is taken @ Rs. 500/-per sq. mtr. and construction charges are taken @ Rs. 3500 per sq. mtr. This may also vary from place to place.
- (viii) The present profile has to be updated taking into prevailing cost of land, building, machinery etc. at the time of implementation of the project

#### **4. IMPLEMENTATION SCHEDULE**

The Time requirement for preparation of Project report : Two months

Time requirement for selection of Site : One month

Time required for registration as Small Scale Unit : One Week

Time required for acquiring the loan

Machinery procurement, erection and commissioning : Three months

Recruitment of labourer etc. : One month

Trial runs : One month

#### **5. TECHNICAL ASPECT**

##### **MANUFACTURING PROCESS**

The film is produced on T-Die Plant. The film is pulled by nip rollers and is slit. The tapes are further orientated or stretched under specific temperature and air velocity.

It is then mechanically fibrillated to produce fish net like structure with the help of pattern fibrillating machine and further passed through

stabilising oven to be wound on bobbin winders. The fibrillate tapes thus produced are then twisted on rope laying machines to make ropes as per the thickness required. Since there is good market for PP ropes abroad, the project is prepared using 80% PP and 20% HDPE as raw material.

## 6. QUALITY & STANDARD

The Ropes are manufactured as per IS : 5175 – 1992

## 7. PRODUCTION CAPACITY (Per Annum)

- (a) Quantity (M.T.) : 1500
- (b) Value (Rs.) : 14,70,00,000.00

## 8. TOTAL POWER REQUIREMENT

Total connected load (KW) : 430

## 9. POLLUTION CONTROL MEASURES

The unit does not create any pollution. However, a proper ventilation should be made in the processing area for the better circulation of the fresh air.

## 10. ENERGY CONSERVATION

Entrepreneurs may select energy efficient machinery and proper planning has also to be made for saving energy in the unit.

## 11. FINANCIAL ASPECT

### A. FIXED CAPITAL

- i) LAND & BUILDING: Area sq. mtrs. Rate Rs. per Sq. mtr.  
(Rs.)

Land	2120	300	6,36,000.00
Building	1060	3500	37,10,000.00
			-----
		Total :	43,46,000.00
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ii) MACHINERY & EQUIPMENT:

(Rs.)	<u>Sr. No.</u>	<u>Description of machines</u>	<u>Qty.(Nos.)</u>
	(a)	Production Unit	
		1) Extrusion line & Converting machines	
		4,50,00,000.00	
		2) Chilling Plant 30 TP	
		10,00,000.00	
	(b)	Testing Equipment & Other Accessories	
		1,00,000.00	
	(c)	Electrification & Installation @ 10% of cost & machinery (a) & (b)	
		46,10,000.00	
	(d)	Pre-operative expenses	
		1,00,000.00	
		Total cost of machinery & equipment ( a to d )	
		5,08,10,000.00	
	(e)	Cost of Moulds, Dies & Misc. items	
		2,00,000.00	
	(f)	Cost of Office Equipment/Furniture/Computers etc.	
		3,00,000.00	
		Total:	-----
			5,13,10,000.00
			-----
	Fixed Capital (i) + (ii)	=	43,46,000 + 5,13,10,000 =
			5,56,56,000.00

B. WORKING CAPITAL

i) Staff and Labour (Per Month)

Designation (Rs.)	Nos.	Salary (Rs.)	
Production Engineer/Manager	01	20,000.00	20,000.00
Sales Executive	02	10,000.00	20,000.00
Accountant	01	10,000.00	10,000.00
Store Keeper-cum-Clerk	01	8,000.00	8,000.00
Watchman	03	4,000.00	12,000.00
Supervisor	03	6,000.00	18,000.00
Skilled Workers	30	5,000.00	1,50,000.00
Unskilled Workers	75	4,000.00	3,00,000.00
			----- 5,38,000.00
Add perquisite @ 10% of the Salary			
53,800.00			-----
		Total:	5,91,800.00
		Or Say Rs.	5,92,000.00

ii) <u>Raw Material</u> (Per Month) (Rs.)	Qty. (MT)	Rate Rs./MT
Polypropylene	125	75
93,75,000.00		

iii) Utilities (per month): (Rs.)

- a) Power 6,45,500.00  
(60% of efficiency x 430 KW x 500 hrs. x Rs. 5 per unit)

5,000.00	b) Water	
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	Total:	6,50,000.00
		-----

iv) Other Contingent Expenses (Per month)  
(Rs.)

	a) Repairs and Maintenance	
	10,000.00	
	b) Transportation Charges	20,000.00
	c) Postage and stationery	2,000.00
	d) Telephone/Fax/Computer	
	3,000.00	
	e) Consumable Stores	
	5,000.00	
	f) Advertisement & Publicity	
	5,000.00	
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	g) Insurance	5,000.00
	h) Miscellaneous Expenses	
5,000.00		
	Total:	55,000.00
		-----

**12. TOTAL WORKING CAPITAL ( Per Month )**

	i) Staff and Labour	5,92,000.00
	ii) Raw Material	
93,75,000.00		
	g) Utilities	6,50,000.00
	iv) Other Contingent Exp.	55,000.00
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	Total:	1,06,72,000.00
Working Capital for 3 months		3,20,16,000.00

**13. TOTAL CAPITAL INVESTMENT**  
(Rs.)

A. Fixed Capital		
43,46,000.00	B. Working Capital for 3 months	
3,20,16,000.00		
	Total:	----- 3,53,62,000.00 -----

**14. FIANCIAL ANALYSIS** (Rs.)

A. Cost of Production (per year) (300 days)		
(a) Total Recurring Cost		
12,80,64,000.00		
(b) Depreciation on building @ 5%		
1,85,500.00		
(c) Depreciation on machinery& equipment @ 10%		
50,81,000.00		
(d) Depreciation on Dies & Moulds @ 20%		
40,000.00		
(e) Depreciation on office equipment @ 20%		
60,000.00		
(f) Interest on total Capital Investment @ 12%		
42,43,440.00		
	Total:	----- 13,76,73,940.00 -----
	Or Say Rs.	
13,76,74,000.00		

B. Sales/Turn over (per year)

<u>Item</u>	<u>Qty.( MT)</u>	<u>Rate (MT)</u>	Value (Rs.)
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PP Ropes	1500	98,000
14,70,00,000.00		
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C. Net Profit (Per year)

Sales(Rs)	–	Cost of Production (Rs.)	=	Profit
(Rs.)				
14,70,00,000	-	13,76,74,000	=	
93,26,000.00				

D. Net Profit Ratio =  $\frac{\text{Net Profit} \times 100}{\text{Sales}}$

=  $\frac{93,26,000 \times 100}{14,70,00,000}$  = 6.3%

E. Rate of Return =  $\frac{\text{Net Profit} \times 100}{\text{Total Capital Investment}}$

=  $\frac{93,26,000 \times 100}{3,53,62,000}$  = 26.37%

F. Break-even Point

Fixed Cost (Per Year) (Rs.)

a) Depreciation on Building @ 5%

1,85,000.00

b) Depreciation on Machinery & Equipment @ 10%

50,81,000.00

c) Depreciation on Moulds/Dies & Office Equipment

1,00,000.00

@ 20%

d) Insurance 60,000.00

e) Interest on total capital investment

42,43,440.00

f) 40% of salary and wages

28,41,600.00

g) 40% of other contingent expenses  
2,64,000.00

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Total: 1,27,75,040.00

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Or Say Rs1,27,75,000.00

Net Profit (Per Year)

$$\begin{aligned} \text{B.E.P. \%} &= \frac{\text{Fixed Cost} \times 100}{\text{Fixed Cost} + \text{Net Profit}} \\ &= \frac{1,27,75,000 \times 100}{1,27,75,000 + 93,26,000} \\ &= \frac{1,27,75,000 \times 100}{2,21,01,000} \\ &= 57.80\% \end{aligned}$$

## **PP WOVEN SACKS**

### **1. INTRODUCTION**

Synthetic woven sacks are usually made of Polypropylene (PP) / High Density Polyethylene (HDPE). These are either laminated, or supplied without lamination depending upon end application. Synthetic Woven Sacks has more life and strength, as compared to jute bags. The usage has increased during the last few years.

PP woven sacks are used in India for packaging of

- Cement
- Chemicals
- Polymers
- Food grains
- Retail Packaging of Commodities etc.

### **2. MARKET POTENTIAL**

380 KT PP was consumed for Raffia in India in 2004-05. As per the Working Group Report on Petrochemicals, Ministry of Chemicals & Fertilisers, the demand of PP Woven Sacks in India is projected to be 738 KT by 2010-11 at a healthy of 10% p.a.

### **3. BASIS & PRESUMPTIONS**

- (i) The output capacity is taken as 300 Kgs/hr. The unit will work at 20 hrs. per day for 25 working days in a month and 300 days in a year. The output capacity may vary from machinery to machinery and the cost of machinery may also vary from supplier to supplier.
- (ii) The time period for achieving the full envisaged capacity utilisation is six months
- (iii) The labour wages are as per the prevailing rates in the market
- (iv) The rate of interest for fixed and working capital is taken as 12 per cent
- (v) The margin money requirement for this project is 30 per cent
- (vi) The pay back period of this project is 5 years
- (vii) The rate of land is taken @ Rs. 300/-per sq. mtr. and construction charges are taken @ Rs. 3500 per sq. mtr. This may also vary from place to place.
- (viii) The present profile has to be updated taking into prevailing cost of land, building, machinery etc. at the time of implementation of the project

### **4. IMPLEMENTATION SCHEDULE**

The Time requirement for preparation of Project report	:	Two months
Time requirement for selection of Site	:	One month
Time required for registration as Small Scale Unit	:	One Week

Time required for acquiring the loan		
Machinery procurement, erection and commissioning :		Three months
Recruitment of labourer etc.	:	One month
Trial runs	:	One month

## 5. **TECHNICAL ASPECT**

### MANUFACTURING PROCESS

The process of manufacturing involves following steps:

1. Manufacturing of tapes
2. Weaving of tapes into fabrics
3. Lamination or extrusion coating (if necessary)
4. Cutting, stitching & printing

#### 1. **Manufacturing of tapes**

The granules of plastic raw materials are fed to the extruder hopper, where they are plasticized and the melt flow is passed through a T-die. Film formed is slit into thin strips. These strips are then oriented by stretching them under heated condition at a pre-determined ratio. Finally, the tapes are wound on cheese winders.

#### 2. **Weaving of tapes into fabrics**

The tapes so obtained by step 1 are fed to circular looms and woven into tubular fabrics on cloth winder.

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#### 3. **Lamination or extrusion coating**

Fabric produced in stage 2 may require to be coated. In case of PP woven sacks lamination is done by special grade of PP only.

Fabric roll is mounted on unwinder from where it passes through two rolls over which T-die connected to the extruder is located. The melt of the material which is to be coated on the fabrics comes through the T- Die as an extrudate and coats the woven fabric. It is then cooled under the pressure and wound.

#### **4. Cutting, stitching and printing**

In stage 3 or the unlaminated fabric as produced at the end of stage 2 is cut, and the bottom is stitched. Then it is printed as per the requirement of the customer.

#### **6. QUALITY & STANDARD**

Woven Sacks are manufactured as per  
IS : 9755/6340 & I4887 – for Food Grains  
IS : 12100 for Flour ; 11024 for Milk Powder

#### **7. PRODUCTION CAPACITY (Per Annum)**

(a) Quantity (M.T.) : 1800  
(b) Value (Rs.) : 17,64,00,000.00

#### **8. TOTAL POWER REQUIREMENT**

Total connected load (KW) : 650

#### **9. POLLUTION CONTROL MEASURES**

The unit does not create any pollution. However, a proper ventilation should be made in the processing area for the better circulation of the fresh air.

#### **10. ENERGY CONSERVATION**

Entrepreneurs may select energy efficient machinery and proper planning has also to be made for saving energy in the unit.

## 11. FINANCIAL ASPECT

### A. FIXED CAPITAL

i) LAND & BUILDING: Area sq. mtrs. Rate Rs. per Sq. mtr.  
(Rs.)

Land	1580	300	4,74,000.00
Building	790	3500	27,65,000.00

32,39,000.00

Total : -----

ii) MACHINERY & EQUIPMENT:

(Rs.)	<u>Sr. No.</u>	<u>Description of machines</u>	<u>Qty.(Nos.)</u>	
	(a)	Production Unit		
	i)	Extrusion line with winders	01	
				2,00,00,000.00
	ii)	Looms	35	
				1,00,00,000.00
	iii)	Chilling Plant	01	
				2,00,000.00
	iv)	Coating line	01	51,00,000.00
	(b)	Testing Equipment & Other Accessories		
				1,00,000.00
	(c)	Electrification & Installation @ 10% of cost & machinery		
				35,40,000.00
		(a) & (b)		
	(d)	Pre-operative expenses		
				1,00,000.00
		Total cost of machinery & equipment ( a to d )		
				3,90,40,000.00

(e) Cost of Moulds & Dies

2,00,000.00

(f) Cost of Office Equipment/Furniture/Computers etc.

3,00,000.00

Total: -----

3,95,40,000.00 -----

Fixed Capital: (i) + (ii) = 32,39,000 + 3,95,40,000 =  
4,27,79,000.00

B. WORKING CAPITAL

i) Staff and Labour (Per Month)

Designation (Rs.)	Nos.	Salary (Rs.)	
Production Engineer/Manager	01	20,000.00	20,000.00
Sales Executive	02	10,000.00	20,000.00
Accountant	01	10,000.00	10,000.00
	127		
Store Keeper-cum-Clerk	01	8,000.00	8,000.00
Watchman	03	4,000.00	12,000.00
Supervisor	03	6,000.00	18,000.00
Skilled Workers	84	4,000.00	3,36,000.00
Unskilled Workers	160	3,000.00	4,80,000.00
		Total:	9,04,000.00
Add perquisite @ 10% of the Salary			
90,400.00			
		Total:	9,94,400.00

Or Say Rs.

9,94,000.00

(Rs.)	ii) <u>Raw Material</u> (Per Month)	Qty. (M.T.)	Rate Rs./MT	
	LLDPE	150	65,000	
	97,50,000.00			
	Chemicals & Other Items			
	2,50,000.00			
				-----
			Total:	1,00,00,000.00
				-----
	iii) <u>Utilities</u> (per month):			(Rs.)
	a) Power		97,50,000.00	
	(60% efficiency x 650 KW x 500 hrs. x Rs. 5 per unit)			
	b) Water			
5,000.00				-----
---			Total:	98,00,000.00
				-----
	iv) <u>Other Contingent Expenses</u> (Per month)			(Rs.)
	a. Repairs and Maintenance		10,000.00	
	b. Transportation Charges			
	20,000.00			
	c. Postage and stationery			
	2,000.00			
	d. Telephone/Fax/Computer		3,000.00	
	e. Consumable Stores		5,000.00	
	f. Advertisement & Publicity		5,000.00	
	g. Insurance			
	5,000.00			
	h. Miscellaneous Expenses			
	5,000.00			-----



Total: 55,000.00  
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**12. TOTAL WORKING CAPITAL ( Per Month ) (Rs.)**

i) Staff and Labour 9,94,000.00  
ii) Raw Material  
1,00,00,000.00  
iii) Utilities 9,80,000.00  
iv) Other Contingent Exp. 55,000.00  
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Total: 1,20,29,000.00  
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Working Capital for 3 months

3,60,87,000.00

**13. TOTAL CAPITAL INVESTMENT  
(Rs.)**

A. Fixed Capital

4,27,79,000.00 B. Working Capital for 3 months

3,60,87,000.00

Total: 7,88,66,000.00  
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**14. FIANCIAL ANALYSIS**

(Rs.)

A. Cost of Production (per year) (300 days)

(a) Total Recurring Cost

14.43.48.000.00

(b) Depreciation on building @ 5%

1,38,250.00

(c) Depreciation on machinery& equipment @ 10%

39,04,000.00

(d) Depreciation on Dies & Moulds @ 20%

40,000.00

(e) Depreciation on office equipment @ 20%

60,000.00

(f) Interest on total Capital Investment @ 12%

94,63,920.00

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Total: 15,79,54,170.00

Or Say Rs.15,79,54,000.00

B. Sales/Turn over (per year)

<u>Item</u> (Rs.)	<u>Qty.( MT)</u>	<u>Rate Rs./MT</u>	Value
LLDPE Woven Sacks 17,64,00,000.00	1800	98,000.00	

C. Net Profit (Per year)

Sales(Rs)	-	Cost of Production (Rs.)	=	Profit
(Rs.)				
17,64,00,000	-	15,79,54,000	=	
1,84,46,000.00				

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D. Net Profit Ratio =  $\frac{\text{Net Profit} \times 100}{\text{Sales}}$

=  $\frac{1,84,46,000 \times 100}{17,64,00,000}$  = 10.45%

E. Rate of Return =  $\frac{\text{Net Profit} \times 100}{\text{Total Capital Investment}}$

=  $\frac{1,84,46,000 \times 100}{7,88,66,000}$  = 23.38%

F. Break-even Point

Fixed Cost (Per Year) Rs.

a) Depreciation on Building @ 5%

1,38,250.00

b) Depreciation on Machinery & Equipment @ 10%

39,04,000.00

c) Depreciation on Moulds/Dies & Office Equipment

1,00,000.00

@ 20%

d) Insurance

60,000.00

e) Interest on total capital investment

94,63,920.00

f) 40% of salary and wages

47,71,200.00

g) 40% of other contingent expenses

2,64,000.00

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Total:

1,87,01,370.00

Or Say Rs,

1,87,01,000.00

Net Profit (Per Year)

$$\begin{aligned} \text{B.E.P. \%} &= \frac{\text{Fixed Cost} \times 100}{\text{Fixed Cost} + \text{Net Profit}} \\ &= \frac{1,87,01,000 \times 100}{1,87,01,000 + 1,84,46,000} \\ &= \frac{1,87,01,000 \times 100}{3,71,47,000} \\ &= 50.34 \% \end{aligned}$$