

# Co-Extruded Multilayer Film

PRODUCT CODE	:	303999004
QUALITY AND STANDARDS	:	As per buyer's specification
MONTH AND YEAR OF PREPARATION	:	January, 2003
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## INTRODUCTION

Three layer blown film extrusion (also known as blow film co-extrusion) is a process of simultaneously extruding in molten stage three polymers which adhere to each other through a common die to form an integral film of unique strength and barrier properties. The selection of layers depends upon end properties required as well as items to be packed. Some combinations of layers are as under:

### Sl. Combination Application No.

- |             |  |
|-------------|--|
| 1. LL/LD/LL | Heavy-duty bags  |
| 2. LL/HD/LL | Industrial base food oil, backed confectionery, dry vegetables, dry unit, hydrogenated oil, lube oil |
| 3. LL/HD/LL | Industrial based food oil, baked confectionery, dry vegetables, dry                                  |

fruit, hydrogenated oil, lube oil

- |                   |  |
|-------------------|--|
| 4. LD/SCRAP/LD    | Garbage bags.  |
| 5. HD/LD/LD       | Industrial base food oil, backed confectionery, dry vegetables, dry unit, and hydrogenated oil, lube oil |
| 6. HD/LL/Primacor | Oil packaging.   |

This project is based on the combination of LLDE/LDPE/LLDPE layer which produces the heavy duty bags.

## MARKET POTENTIAL

Now-a-days the Three Layers Co-extruded blown film is playing a major role in the packaging industry. It is replacing the conventional packing materials like paper, aluminium foil, tin, glass etc. These films are considered for packing purpose because of specific requirement of self-life and protection to product. The other advantages are excellent resistance to puncturing, heat

sealability, gas barrier, high mechanical property high bursting strength etc. Due to these properties these films are having very good scope for packaging.

### BASIS AND PRESUMPTIONS

1. The efficiency of the unit is calculated at 80% of the total production capacity. The unit will work 25 days in a month on three shifts of 20 hrs. basis and 300 days in a year i.e. 6000 hrs. per year.
2. The time period for achieving the full envisaged capacity utilization is one year.
3. The labour wages are as per the prevailing rates in the market.
4. The rate of interest for fixed and working capital is taken @ 14%.
5. The margin money requirement for this project is 25%.
6. The pay back period of this project is 5 years.
7. The land area is 500 sq. meters and the constructed area is 250 sq. meters.

### IMPLEMENTATION SCHEDULE

The time required for preparation of project report	Two months
Time required for selection of site	One month
Time required for registration as small-scale unit	One week
Time required for acquiring the loan	Three months
Machinery procurement, erection and commissioning	Two months
Recruitment of labours etc.	One month
Trial runs	One month

### TECHNICAL ASPECTS

#### Process of Manufacture

Raw materials are fed into the hopper, which gets heated in the barrel with the help of the heater. The melt in the extruders is conveyed forward by the screw rotation. The three extruders individually feed the three channels within the die. All the flow channels converge into a single flow channel, just a little distance before the material is blown out from the annular die orifice. The rotating die ensures even distribution of the melt flow while coming out of the die orifice. The rotating die ensures even distribution of the melt flow while coming out of the die office. The bubble is cooled by means of air circulation arrangements. The pre-determined size of the blown film is obtained by inserting compressed air through the die. Iris rings, flattering boards, counter rotating nil rolls draw the film upwards and flatten it into a two layer lay flat film, which is wound on the winder. The film is also treated with corona discharge equipment and then printed on flexography or rotogravure printing machine in desired colours.

#### Quality Control and Standards

IS10141: 1982/1997 or as per customer's specification.

#### Production Capacity (per annum)

- (a) Quantity : 630 MT
- (b) Value : Rs. 403.65 Lakhs.

#### Motive Power

The total connected load of the unit is 150 kWH. On Assuming 60% utilization of the connected load.

## Pollution Control

This unit has not been identified as the pollution making industry. However, proper ventilation of the working shed may be assured.

## Energy Conservation

Production by proper planning may save the energy.

## FINANCIAL ASPECTS

### A. Fixed Capital

(i) Land and Building Area sq. mtrs.	Rate Rs/ sq. mtrs.	Value (Rs.)
Land	500	
Working shed	250	
Office and Stores	100	Rented 10,000

#### (ii) Machinery and Equipments

Description	Qty. No.	Value (Rs.)
<b>(a) Production Unit</b>		
(i) Three layer co-extrusion blown film plant with three single screw 47 mm extruder and accessories.	1	30,00,000
(ii) Corona surface treatment plant	1	2,00,000
(iii) Three/four colour Rota Gravure Printing Machine	1	5,00,000
(iv) Sliter-cum-regrinder machine	1	1,00,000
<b>(b) Testing equipment</b>	LS	50,000
<b>(c) Electrification and Installation charges @ 10% of cost of machinery and equipment.</b>		3,85,000
<b>(d) Total cost of Machinery and equipment</b>		42,35,000
<b>(e) Cost of office equipment/ working Table etc.</b>		50,000

(iii) Pre-operative Expenses Rs. 15,000

(Project cost, non-refundable deposits) Total fixed capital (i+ii+iii)

### B. Working Capital (per month)

#### (i) Personnel

Designation	Nos.	Salary (Rs.)	Total (Rs.)
Manager	1	10,000	10,000
Machine Operator	2	5,000	10,000
Skilled Workers	3	2,500	7,500
Clerk-cum-accountant	1	4000	4,000
Unskilled Workers	3	1,500	4,500
Peon	1	1,500	1,500
<b>Total</b>			37,500
<i>Perquisites @ 15% of Salaries</i>			5,625
<b>Total</b>			43,125
<b>or Say</b>			43,000

#### (ii) Raw Materials Including Packaging Requirement (per month)

Particulars	Qty.	Rate/ Kg.	Value (Rs.)
LDPE/LLDPE	52,500	50	26,25,000
Printing Ink			50,000
Packing Material			5,000
<b>Total</b>			26,80,000

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

Power 96 kw × 500 hrs. × Rs. 4 × 0.6 utilization	1,15,200
Water	2,000
	1,17,000

#### (iv) Other Contingent Expenses (per month)(Rs.)

Rent	10,000
Postage and Stationery	10,000
Telephone	2,000
Consumable Store	1,000
Repair and Maintenance	1,000
Transportation Charges	10,000
Advertisement and Publicity	1,000
Insurance	4,000
<b>Total</b>	30,000

(v) Total Recurring Expenditure (per month)  
Rs. 28,27,000

(i) Staff and labour	43,000
(ii) Raw material	26,80,000
(iii) Utilities	1,17,000
(iv) Other Contingent Expenses	30,000
(vii) Total Recurring Expenditure of 3 Months	Rs. 84,81,000

### C. Total Capital Investment

1. Fixed Capital	43,00,000
2. Working Capital	84,81,000
<b>Total</b>	<b>1,27,81,000</b>

### Machinery Utilization

Co-extrusion process will be the bottleneck operation for this project. The production capacity is 105 kgs. per hour.

## FINANCIAL ANALYSIS

(1) Cost of Production ( per year)	(Rs.)
Total recurring cost	33,92,400
Depreciation on machineries @ 10%	4,23,500
Depreciation on office equipment @ 20%	10,000
Interest on total Capital investment @ 14%	17,89,340
<b>Total</b>	<b>3,61,46,840</b>
<b>or Say</b>	<b>3,61,46,800</b>

### (2) Turnover (per year)

Item	Qty. MT	Rate per Kg.	Value (Rs.)
Co-extruded two-layer film	617	65000	4,01,05,000
Scrap	13	20,000	2,60,000
<b>Total</b>			<b>4,03,65,000</b>

### (3) Net Profit (per year)

Turnover(Rs.)	Cost of Production(Rs.)	Profit(Rs.)
4,03,65,000	3,61,47,000	4,218,000

### (4) Net Profit Ratio

$$= \frac{\text{Net profit per year} \times 100}{\text{Turnover}}$$

$$= \frac{42,18000 \times 100}{4,03,65,000}$$

$$= 10.45\%$$

### (5) Rate of Return

$$= \frac{\text{Net profit per year} \times 100}{\text{Total investment}}$$

$$= \frac{42,18000 \times 100}{1,27,81000}$$

$$= 33\%$$

### (6) Break-even Point (% of Total Production Envisaged)

(i) Fixed Cost	(Rs.)
a) Depreciation on machinery and equipment	4,23,500
b) Depreciation on office equipment	10,000
c) Rent	1,20,000
d) Interest on total capital investment	17,89,340
e) Insurance	48,000
f) 40% of salary and wages	2,06,400
g) 40% of other contingent expenses	76,800
<b>Total</b>	<b>2,674,040</b>
<b>or Say</b>	<b>2,674,000</b>

### (ii) Net Profit (per year)

$$\text{B.E.P.} = \frac{\text{F.C.} \times 100}{\text{F.C.} + \text{Profit}}$$

$$= \frac{26,74,000 \times 100}{26,74,000 + 42,18,000}$$

$$= \frac{26,74,000 \times 100}{68,92,000}$$

$$= 38.8\%$$

## Addresses of Machinery and Equipment Suppliers

### Co-extrusion Blown Film Plan

1. M/s. Klockner Windsor India Ltd.  
5403, G.I.D.C. Industrial Estate,  
Phase IV, Vatva,  
Ahmedabad-382445

2. M/s. Boolani Engineering Corporation  
Prabhadevi Industrial Estate,  
403, Veer Savarkar Marg,  
Mumbai-400025 (Maharashtra)
3. M/s. Kolsite Machine Febrk Ltd.  
P. O. Box 7368,  
Veera Desai Road,  
Mumbai-400058 (Maharashtra)
4. M/s. Brimco Plastic Machinery Pvt. Ltd.  
Brimco House, Plot No. 55,  
Govt. Industrial Estate,  
Charcop, Kandivli West,  
Mumbai-400067, (Maharashtra)

#### Carona Surface Treatment Plant

1. M/s. Kohli Industries  
6, New Office Bldg.,  
Sona Panchayat Road,  
Andheri East,  
Mumbai.
2. M/s. Industrial Electronics Pvt. Ltd.  
19-21, Ambalal Doshi Marg, Fort,  
Mumbai-400023

#### Rotogravure Printing Machinery

1. M/s. Big Ban Engineering Works  
4, Sadi Bazar,  
171, Maulana Azad Road,  
Madanpura,  
Mumbai-400008
2. M/s. Print and Paper Sales Pvt. Ltd.  
Post Box No. 394,  
4/7, A Waterloo Street,  
Kolkata-700069

#### Slitter-Cum-Rewinder

1. M/s. Print and Paper Sales Pvt. Ltd.  
Post Box No. 394,  
4/7, A, Waterloo Street,  
Kolkata-700069
2. M/s. Arshed Electronics Pvt. Ltd.  
305, Hammer Smith Ind. Estate,  
Shitla Devi Temple Road,  
Mahim, Mumbai-400016

#### Addresses of Raw Material Suppliers

1. M/s. Indian Petro-Chemicals Corp. Ltd.  
Post Office- Petro-Chemicals,  
Distt. Vadodara-391346
2. M/s. Union Carbide India Ltd.  
Chemical and Plastic Division,  
15, Mathew Road,  
Mumbai-400004
3. M/s. Alkali and Chemicals Corporation of India Ltd.  
34, Chowringhee Road,  
Kolkata-700021
4. M/s. Bindal Agro Chem Ltd.  
12th Floor, Gopala Tower,  
25, Rajendra Place,  
New Delhi-110008
5. M/s. Reliance Petrochemicals  
Maker Chamber IV,  
3rd Floor, 222,  
Nariman Point,  
Mumbai-400021.
6. M/s. Polyolefins Industries Ltd.  
Mafatlal Centre,  
Nariman Point,  
Mumbai-400021.