

# **PROJECT PROFILE**

ON

## **LAMINATED FLEXIBLE PACKAGING**

Month & Year  
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# LAMINATED FLEXIBLE PACKAGING

## INTRODUCTION:

The Indian packaging industry is expected to grow to Rs 82,500 crore by 2015 from the current Rs 65,000 crore.

India stands at the 11th position in the world packaging industry, which is \$550-billion, and with the rising consumer demand and new technologies, it is expected to grow at 18-20 per cent from the current 15 per cent, as per Indian Institute of Packaging (IIP).

Among the total packaging sources, plastic packaging is at 6.8 million tonne and growing at 20-25 per cent per annum, **whereas paper packaging is 7.6 million tonne**. Glass packaging contributes to 4-5 per cent and metal 8 per cent. Forty per cent of the total paper production goes for packaging.

Today, whatever we use needs a packaging. Last year, our GDP growth was 8.5 per cent while the packaging industry grew 15 per cent.

## Indian Packaging Industry

- The market volume of the Indian packaging industry amounts to about Rs. 77,570 crore and has constantly grown by approximately 15 percent year on year.
- The pace of growth will accelerate to between 20-25 percent over the next five years.
- The highest demand for packaging and the associated equipment come from the food processing industry at 50 percent and from the pharmaceutical industry at 25 percent.

- The large growing middle class, liberalization and organized retail sector are the catalysts to growth in packaging. Also food and Pharma packaging are the key driving segments.
- The Indian food market is estimated to total about Rs. 8,82,350 crore according to the 'India Food Report 2008' published by Research and Markets.
- Food retail turnover is expected to grow from the current Rs 3,39,365 crore mark to 7,27,212 crore by 2025.
- The pharmaceutical industry is expected to average an annual growth of 16 percent till 2012.
- There are about 600-700 packaging machinery manufacturers, 95 percent of which are in the small and medium sector located all over India.
- Indian packaging machinery imports are around Rs 606 crore (20-25 percent) while the Indian packaging machinery exports are rapidly growing.
- Germany and Italy are the largest suppliers of packaging machinery to India but focus is now shifting on Taiwan and China.
- Indian companies are now placing increasing emphasis on attractive and hygienic packaging. This promises enormous potential for the future.

### **Packaging & Allied Industries – The South India Scenario**

- Southern states including Andhra Pradesh, Karnataka, Kerala, Bangalore and Tamil Nadu -- now lead the country in a number of indices, including Packaging.
- South India has emerged as the largest consumer of 'poly ethylene terephthalate' (PET) material for packaging mineral water.
- South India is emerging as a strong pharma hub with strong infrastructure of research facilities and scientists.

- Dairy product packaging constitutes a large portion of the South India Packaging industry.
- Abundant tea production in South India brings opportunities in paper bag packaging industry.
- Retail Sales of packaged food is growing at a rate of 12 percent in South India.
- As Coffee and Spice output in the Southern hemisphere see a steady incline of close to 10 percent individually and export markets pick up again, newer opportunities arise for various packaging segments.
- While major components such as cartons, cans and laminates, which are Bureau of Indian Standards (BIS) certified, are of global standards, the glass bottles and outer cartons are areas that need to be upgraded.

### **PRODUCT USES & SPECIFICATIONS:**

The major products using laminated packaging are processed food and convenience food, refill packs for malted products like Bournvita, coffee, tea, bakery products like biscuits, confectionery, fruit juice concentrates, products like pan parag, spices, toiletries, premium soap wrappers, shampoo sachets etc.

### **MARKET POTENTIAL:**

Compared to other pack forms, flexible packaging is particularly cost effective and environmentally positive because of its light weight. In recent years, the introduction of "state-of-the-art" in-line printing, laminating and cooling operations has enabled the tailoring of structures to meet specific requirements of individual products so providing the best possible packaging solutions for consumer goods, especially food products.

Ready meals are offered for sale in three formats – frozen, chilled and shelf-stable. Each of these types has different packaging requirements.

Frozen food inherently has a long shelf life (in the freezer) and requirement of packaging is that it should contain the product and keep it clean. In addition there is the need for it to be capable of being used as the container in which the food is reheated.

Chilled foodstuffs have a relatively short shelf - life and are therefore packed in low or medium barrier materials. Traditionally, shelf stable meals have been made by the in-pack processing of pre-packed foodstuffs. The method normally used in the retort process where the food and packaging together are processed at temperatures above 100 deg C, usually 121 deg C and sometime as high as 130 deg C. After such processing the ready meal (for example) has a shelf - life of one or two year under ambient conditions.

Traditionally, fruit juices and dairy products such as milk and cream have been aseptically packed, that is sterilized at a lower temperature. The packaging materials are similarly sterilized, for example by the use of a peroxide wash and products are then packed in microbiologically clean environment. The shelf-life under ambient conditions thus depends on the product/packaging barrier combination.

New food processing now becoming available includes the ohmic process of APV which sterilizes the food prior to packing and is likely to be developed to allow the use of substantial sized particulate to be present in the products offered.

However, more recently, aluminium foil lid has largely been replaced by plastics – based materials for microwave use where, with appropriate selection, the lid materials can withstand the temperatures achieved. Also approved for food contact use under these conditions, these materials can produce a cost saving as no splash guard is needed if the lid is pierced before re-heating and only removed when the hot food is ready to serve.

Flexible Packaging has become a major factor in the distribution of products throughout the world. Its role is the result of the ability to combine the properties of various materials through the process of laminating. For example aluminium foil is an excellent barrier to water vapour, gases and light but is not heat sealable and in gauges thinner enough to be economically feasible for packaging and does not have strength. When laminated to paper and to plastic film the barrier properties can be exploited while the other substratum contribute strength, puncture resistance, stiffness and heat sealability.

The function of packaging is to provide the product protection against gain or loss of components or changes in the product as a result of external forces. The primary barriers considered are water, vapour, odours, flavourants and light. Barrier properties can be designed into lamination to the degree necessary to provide product protection while minimizing the cost and consistent with the physical properties needed to function properly on packaging machinery and through distribution.

Laminated materials have really picked up and the total market potential is around 80,000 TPA with an annual growth of 15 to 20%. With the growth of self service stores and consumer awareness for pilfer proof well protected and presented products, the growth of laminates can be marketed with confidence.

Processed food is another sector of high volume consumption. The Government estimated production of processed food of a value of Rs.14,000 crores, which would require about 40,000 TPA of packing materials in the form of co-extruded films and laminates.

## **TECHNICAL ASPECTS:**

### **INSTALLED CAPACITY**

The envisaged capacity proposed is 100 Mts. per annum.

Width of machine 48" (122 cm) 1.2 m

Speed - 600 metres per hour

Production per hour - 720 sqmt.  
 Weight of Lamination - 60 GSM (Average)  
 Production per day 8 hours = 346 kgs. (720 x 60 x 8 = 346 kgs.)  
 For 300 days - 103800 kgs.  
 Assumed as - 100 MT.

## **PLANT & MACHINERY**

Film lamination machine	6.00
Flexo printing machine	5.00
Stereo making press	2.50
Rollers of different sizes	1.50
<b>Total</b>	<b>15.00</b>

## **MANUFACTURING PROCESS:**

Dry Bond (Adhesive) Lamination:

### **PET (Polyster) + Adhesive + Metalised Polyster + PET (Polyster).**

This method used for bonding two impervious web consists of applying the adhesive to the inside face of two webs. This process is very suitable for the laminations of plastic films to other substrates. The application of adhesive to the film surface by a gravure roller and combined in the pressure up roller and taken to the wind in rollers, with uniform tension and free of creases folds and wrinkles and ensuring both the ends are exactly parallel and not telescoping. After lamination the flexible web sheets are printed in Flexographic printing machine.

## **RAW MATERIALS:**

For manufacturing of aluminium foil and Polyster bases laminates the following raw materials are required.

1. Metallised Polyster Film
2. Non Metallised Polyster Film
3. Low density Polyethylene
4. Paper or any other laminatable sheet.

All raw materials are available indigenously.

A typical material mix for one MT of laminate can be described below.

Average cost per MT of Flexible Laminated Sheets

	<b>Qty</b>	<b>Rate/Kg.</b>	<b>Value (Rs.)</b>
Metalised Polyester	32 kgs.	Rs.195	6240
Clear Polyester	240 kgs.	Rs.148	35520
Co-ex film	610 kgs.	Rs.95	57950
Adhesive	55 kgs.	Rs.205	11275
Solvent for adhesive	45 kgs.	Rs.65	2925
Inks	164 kgs.	Rs.215	35260
Solvents per ink	70 kgs.	Rs.18	1260
<b>Total</b>			<b>150430</b>

Rate per kg. Rs.150.43/-

### **LAND & BUILDING:**

1500 Sqft. This can be on rental basis. Rs. 15000 per month advance Rs. 1.50 lakhs

### **UTILITIES**

**Electricity:** Power requirement of 15 H.P. is sufficient for operation.

**Water:** Water is not required for process.

### **Man Power Requirement:**

<b>Category</b>	<b>Nos</b>	<b>Monthly Salary</b>	<b>Total Monthly Salary</b>
Manager	1	10000	10000
Skilled	4	6000	24000
Unskilled workers	2	4000	8000
Assistant	2	5000	10000
			52000
Add : Benefits	20%		10400
Total			62400



Total wages per annum [Rs. lakhs]		Rs.7.49
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### **IMPLEMENTATION SCHEDULE:**

The machines are indigenously available. The delivery can be done within 2 months. The project can be implemented within 3 months' period if finance is made available.

### **ASSUMPTIONS**

- The installed capacity is 100 MTs of Laminated Flexible Packaging per annum.
- The capacity utilization assumed is 60% in first year, which will be increased to 70% and 80% in subsequent years.
- Selling price per Metric Tonne is assumed at Rs.1.95 lakhs.
- The raw material cost at 100% capacity is Rs.150.43 lakhs.
- The cost of power charges at 100% is Rs.1.42 lakh p.a (Rs. 11833 p.m)
- Wages and salaries is assumed at Rs.7.49 lakhs p.a. as per the breakup given above with annual increase 5%.
- Repairs & maintenance is provided at Rs.0.60 lakh p.a. (Rs. 5000 per month) with annual increase 5%.
- Depreciation is provided on WDV method at 15% on machinery.
- Administration and General expenses is provided at Rs.3.60 lakh per annum. (Rs. 2000 per month) with annual increase 5%.
- Selling expenses is provided at 3% on sales
- Interest on term loan and working capital finance is calculated at 12% per annum.
- Income tax is calculated at 33.22% on taxable profits.

### **LIST OF MACHINERY SUPPLIERS**

1. M/s. Yenyiskey Machine Tools, Near J.M. Hospital, Thadagam Road  
Coimbatore 641025.
2. M/s.Anjana Machinery Mfg. Pvt. Ltd., 206, Udyog Bhavan, Sharma Industrial  
Estate, Goregaon East, Mumbai - 400063.
3. M/s. J.D. Enterprises, 16, Syed Amir Ali Avenue, Calcutta - 700017.

## RAW MATERIAL SUPPLIERS

### Metallised Film & Polyster Film:

1. SPICK India Pvt. Ltd., 91/C4, Govindappa Naicken Street, Chennai 600 001.
2. M/s.Venlon Polymers Limited, Hosur.
3. M/s.Garware Plastic Pvt. Ltd., 19, Casa Major Road, Egmore, Chennai 600 008
4. M/s Annamalaiar Platics, 26, Chinnathambi Mudali Street, Chennai 600 001

## FINANCIAL ASPECTS

### 1. COST OF PROJECT

	[Rs. lakhs]
Land & Building (Advance)	1.50
Plant & Machinery	15.00
Contingencies	0.75
Other Misc. assets	1.00
Pre-Operative expenses	1.00
Margin for WC	6.00
	<b>25.25</b>

### 2. MEANS OF FINANCE

Capital	17.75
Term Loan	7.50
	<b>25.25</b>

### 3. COST OF PRODUCTION & PROFITABILITY STATEMENTS

	[Rs.lakhs]		
Years	1	2	3
Installed Capacity (MT)	100	100	100
Utilisation	60%	70%	80%
Production/Sales (MT)	60	70	80
Selling Rate per MT.	Rs.1.95	lakhs	
Sales Value (Rs. lakhs)	<b>117.00</b>	<b>136.50</b>	<b>156.00</b>

Raw Materials	90.26	105.30	120.34
Power	0.85	0.99	1.14
Wages & Salaries	7.49	7.86	8.25
Repairs & Maintenance	0.60	0.66	0.73
Depreciation	2.36	2.01	1.71
Cost of Production	101.56	116.82	132.17
Admin. & General expenses	3.60	3.78	3.97
Selling expenses	3.51	4.10	4.68
Interest on Term Loan	0.90	0.79	0.56
Interest on Working Capital	2.79	2.79	2.79
Total	112.36	128.28	144.17
Profit Before Tax	4.64	8.22	11.83
Provision for tax	1.54	2.73	3.93
Profit After Tax	<b>3.10</b>	<b>5.49</b>	<b>7.90</b>
Add: Depreciation	2.36	2.01	1.71
Cash Accruals	5.46	7.50	9.61

#### 4. WORKING CAPITAL:

	Months Consumptions	Values	%	Margin Amount	Bank Finance
Raw Materials	2.00	15.04	25%	3.76	11.28
Finished goods	0.50	4.23	25%	1.06	3.17
Debtors	1.00	9.75	10%	0.98	8.77
Expenses	1.00	0.20	100%	0.20	0.00
		29.22		6.00	23.22

#### 5. PROFITABILITY RATIOS BASED ON 80% UTILISATION

$\frac{\text{Profit after Tax}}{\text{Sales}}$	=	$\frac{7.90}{156.00}$	5%
$\frac{\text{Profit before Interest and Tax}}{\text{Total Investment}}$	=	$\frac{15.18}{48.47}$	31%
$\frac{\text{Profit after Tax}}{\text{Promoters Capital}}$	=	$\frac{7.90}{17.75}$	45%

#### 6. BREAK EVEN LEVEL

Fixed Cost (FC):

	[Rs. lakhs]
Wages & Salaries	8.25
Repairs & Maintenance	0.73
Depreciation	1.71
Admin. & General expenses	3.97
Interest on TL	<u>0.56</u>
	<u>15.22</u>

Profit Before Tax (P) 11.83

$$\text{BEL} = \frac{\text{FC} \times 100}{\text{FC} + \text{P}} = \frac{15.22}{27.05} \times \frac{80}{100} \times 100$$

45% of installed capacity