LAMINATED FLEXIBLE PACKAGING

1. INTRODUCTION

The packaging industry in India, which started way back in the 1950's, has grown slowly and steadily in both quality and quantity. The 70's and 80's witnessed a remarkable change in materials as well as machinery depending on the tastes of the markets.

In the 80's the Indian packaging industry witnessed about four to five percent growth. But once brand awareness caught on around the 90's the growth touched 15-20 per cent. This has not only given face-lift to the industry but also opened it up for innovations. In this period, the industry by and large, depended on domestic resources for materials as well as machinery. This was due to various restrictions on imports. Around the mid 90's, liberalisation opened the industry further and it began to reflect in the changes in consumers' consumption pattern.

Packaging manufacturers are responding with state of the art solutions such as multi-layer foils, trays, stand bags, PET bottles, lids and closures. On-going innovations by the plastics industry help to accommodate these requirements. The major disadvantage of all plastic materials is the fact that they are gas-permeable, whereas glass, tinplate and aluminium offer almost 100 percent protections.

The global market for packaging is worth US $900 billion and India's share is just US $3 billion. This it shows the potential for growth as the economy expands with large consumers in the waiting. If India can increase the penetration level in the global market, the packaging industry can become a fast emerging industry in India. The packaging industry faces a challenge from the ever-growing demands of consumers, who want food to remain fresh longer, as well as being easy to handle, healthy and packaged in environmentally – friendly materials.

2. PRODUCTS AND ITS APPLICATION

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.

3. DESIRED QUALIFICATION FOR PROMOTER

The Promoter should have preferably a basic degree in plastic engineering/ processing or a degree/ diploma in engineering / or a degree in chemistry. Experience of at least two to three years in plastic industry is desirable.

4. INDUSTRY OUTLOOK/TREND

Packaging industry in India has an estimated turnover of Rs.11, 500 crore, which is growing at the rate of 18 per cent annually. The changing pattern of the Indian Consumer behaviour directly affects the packaging industry as the direct expenditure incurred by companies to make the products attractively packaged is increasing day by day. The industry has a huge potential and it is growing at rapid pace.

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5. MARKET POTENTIAL AND MARKETING ISSUES, IF ANY

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.

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

Flexible Packaging has become a major factor in the distribution of productsthroughout the world. Its role is the result of the ability to combine the propertiesof various materials through

the process of laminating. For examplealuminum foilis an excellent barrier to water vapour, gases and light but is not heat sealable andin gauges thinner enough to be economically feasible for packaging and does nothave strength. When laminated to paper and to plastic film the barrier propertiescan be exploited while the other substratum contribute strength, punctureresistance, stiffness and heat sealability.

The function of packaging is to provide the product protection against gain or loss ofcomponents or changes in the product as a result of external forces. The primarybarriers considered are water, vapour, odours, flavourants and light. Barrierproperties can be designed into lamination to the degree necessary to provideproduct protection while minimizing the cost and consistent with the physicalproperties needed to function properly on packaging machinery and throughdistribution.

Laminated materials have really picked up and the total market potential is around80,000 TPA with an annual growth of 15 to 20%. With the growth of self-servicestores and consumer awareness for pilfer proof well protected and presentedproducts; the growth of laminates can be marketed with confidence.

Processed food is another sector of high volume consumption. The Governmentestimated production of processed food of a value of Rs.14,000 crores, which wouldrequire about 40,000 TPA of packing materials in the form of co-extruded films andlaminates.

6. RAW MATERIAL REQUIREMENTS

For manufacturing of aluminum foil and Polyester bases laminates the following raw materials are required.

- MetallizedPolyester Film
- Non MetallizedPolyester Film
- Low density Polyethylene
- Paper or any other laminatable sheet.

7. MANUFACTURING PROCESS

Dry Bond (Adhesive) Lamination:

PET (Polyester) + Adhesive + MetalizedPolyester + PET (Polyester).

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

8. MANPOWER REQUIREMENT

Sr. No.	Particulars	Nos	Salary
1	Manager	1	11000
2	Accountant	1	10500
3	Office boy cum Store Keeper	1	6000
4	Unskilled Worker	2	8000
5	Supervisor	1	9000
6	Skilled worker	4	32000
8	Watchman	1	5000
	Total	11	81500

9. IMPLEMENTATION SCHEDULE

Estimated implementation time for the project would be approximately 15 months.

Sr. No.	Particulars	Time Period
1	The Time requirement for preparation of Project report	Two months
2	Sanctioning of loan	Two months
3	Selection of land	One month
3	Registration as Small Scale Unit	One month
4	Time required for acquiring the loan Machinery procurement, erection and commissioning	Three Months
5	Recruitment of labourer etc.	One month
6	Trial runs	Two Months

10. COST OF PROJECT

Sr. No.	Particulars	Rs. In lakhs
1	Land and Building	28.00
2	Plant and Machinery	13.50
3	Miscellaneous Assets	3.45
4	P & P Expenses	2.45
5	Contingencies @ 10% on land and building and plant and machinery	4.15
6	Working capital margin	16.53
	Total	**68.08**

11. MEANS OF FINANCE

Sr. No.	Particulars	Rs. (lakhs)
1	Promoter's contribution	20.424
2	Bank Finance	47.656
		68.08

12. WORKING CAPITAL CALCULATION

Sr. No.	Particulars	Rs. lakhs	Stock Period days	Promoter Margin	Margin Amt.	Bank Finance
1	Salaries and wages	0.82	30	1	0.82	-
2	Raw material and packaging material	14.87	30	0.5	7.435	7.435
3	Utilities	0.55	30	0.5	0.275	0.275
4	Debtors	20	30	0.4	8	12
	Total	36.24			16.53	

13. LIST OF MACHINERY REQUIRED

Sr. No.	Particulars	Rs. lakhs
1	Film lamination machine	5
2	Flexo printing machine	4.5
3	Streo making press	2.50
4	Rollers of different sizes	1.50
	Total	13.50

- Ocean International
  B– 101, First Floor,
  Galaxy Business park,
  OppNikol Torrent Sub Station,
  Odhav S, Ahmedabad,
  Gujarat.

- Dreampac Machines
  #14, Lloyds Avenue,
  Podanur,
  Coimbatore,
  Tamil Nadu

14. PROFITABILITY CALCULATIONS

(Rs.)

Sr. No.	Particulars	Year 1	Year 2	Year 3	Year 4	Year 5
(A)	Sales Realization per annum	16800000	19200000	21600000	21600000	21600000
(B)	Cost of Production					
1	Raw material per annum	12495000	14280000	16065000	16065000	16065000
2	Utilities	525000	600000	675000	675000	675000
3	Salaries	978000	1026900	1075800	1075800	1075800
4	Repairs and maintenance	285000	285000	305000	325000	345000
5	Selling expenses (3% on sales value)	504000	576000	648000	648000	648000
6	Administrative Expenses (other expenses)	450000	470000	490000	510000	530000
	Total	15237000	17237900	19258800	19298800	19338800
(C)	Profit before interest & depreciation	1563000	1962100	2341200	2301200	2261200
	depreciation	622500	622500	622500	622500	622500
	Profit Before term loan and tax	940500	1339600	1718700	1678700	1638700
	Interest on term loan (11%)	498005.2	419372.8	314529.6	209686.4	104843.2
	Profit before tax	442494.8	920227.2	1404170.4	1469013.6	1533856.8
	Tax (30%)	132748.44	276068.16	421251.12	440704.08	460157.04
	Total Profit	309746.36	644159.04	982919.28	1028309.52	1073699.76

Underlying assumptions for probability calculation are:-

The installed capacity of the plant is assumed at 110 MT per annum. The capacity utilization is taken at 70% for the first year which will be increased to 90% in the third year. The raw material price is assumed at Rs. 160/- per KG. The selling price is taken at Rs.220/- per KG. Power cost is taken at Rs.8/- per unit. Interest rate on long term loan is taken at 11%.

15. BREAKEVEN ANALYSIS

Fixed Cost (FC):	Rs. In lakhs
Wages & Salaries	9.78
Repairs & Maintenance	2.85
Depreciation	6.23
Admin. & General expenses	4.5
Interest on Term Loan	4.95
Total	**28.31**

Fixed Cost: 28.31

Profit After Tax: 3.09

BEP = FC x 100/FC+P

28.31 /31.99 x 70/100 x 100

61.95%

16. STATUTORY/GOVERNMENT APPROVALS

There is no specific statutory requirement for plastic industry process. However, MSME registration various taxation related registration and labour law related compliances have to be ensured. Entrepreneur may contact State Pollution Control Board where ever it is applicable.

17. BACKWARD & FORWARD LINKAGES

There are no specific backward or forward linkages related techno-economic advantages or synergies for this type of project. However, in future after achieving certain growth entrepreneur may consider backward linkage.

18. TRAINING CENTRE AND COURSES:

There are number of institutions providing facilities and training courses on production/marketing for the proposed project. These are Central Institute of Plastic Engineering and Technology (CIPET), Indian Institute of Packaging Management (IIPM), Plastic and Rubber Institute (PRI), Indo German Tool Room (IGTR), etc.

Udyamimitraportal (link : www.udyamimitra.in) can also be accessed for handholding services viz. application filling / project report preparation, EDP, financial Training, Skill Development, mentoring etc.

Entrepreneurship program helps to run business successfully is also available from Institutes like Entrepreneurship Development Institute of India (EDII) and its affiliates all over India.

Disclaimer:

Only few machine manufacturers are mentioned in the profile, although many machine manufacturers are available in the market. The addresses given for machinery manufacturers have been taken from reliable sources, to the best of knowledge and contacts. However, no responsibility is admitted, in case any inadvertent error or incorrectness is noticed therein. Further the same have been given by way of information only and do not carry any recommendation.