

# **PROJECT PROFILE**

ON

## **CORRUGATED BOXES**

Month & Year  
July 2010

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# **CORRUGATED BOXES**

## **INTRODUCTION**

Corrugated boxes have made significant strides in packaging either as a primary pack, secondary pack or as a transport container. Corrugated boxes have successfully replaced other packaging and are now being widely used for packaging fruits, vegetables, canned foods, chemicals, pharmaceuticals, electrical appliances, garments etc.

## **PRODUCT USES & SPECIFICATION**

Bureau of Indian Standard has developed the specification of corrugated fibre board Boxes and its tests. The number of specification book is given below:

IS : 2771 (Part 1) – 1977 – Corrugated fibre board boxes (first revision)

IS : 7063 – Test for Corrugated fibre board.

### **Product Specification :**

Corrugated board can be classified as under :

1. Single faced corrugated Board (2 ply)
2. Double faced corrugated Board (3 ply or single wall)
3. Double wall corrugated Board (5 ply or double wall)
4. Triple wall corrugated Board (7 ply)

### **The Corrugated Boxes have the following advantages:**

1. Effective cushioning materials.
2. Light weight (freight advantage)
3. Easy to fabricate
4. Easy for storing
5. Easy for disposal
6. Pilfer-proof
7. No strapping necessary
8. Articles kept dust free after sealing
9. Can be made water resistant

10. Printing & Advertising advantage
11. Desired in Export Market
12. Eliminates dependency on natural wood
13. Recyclable
14. Expedites production due to on line conveyor packing.

Because of the aforesaid qualities, the demand for packing in Corrugated Fibre Board is rapidly growing. The recent survey has revealed that 80% to 85% packing is now being done through corrugated fibre Board..

## **MARKET POTENTIAL**

Does paper have a future in the digital age? Ultimately, it is a question best answered by the needs of the consumers, but based on the global demand outlook, consumers still want paper well into the 21st century. World demand for paper has doubled in the past 20 years and it is forecast to double again by the year 2010.

Per capita consumption of paper & paper board in India at 5 Kg is very low compared to other developing countries like China (17.2 Kg), Brazil (28 Kg) for the year 2000. Therefore, despite the threat of paperless transaction, scope for paper demand appears to be bright. In developed nations it is as high as 152 Kgs per annum.

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.

A list of the major industries, in which Paper is extensively used at present, is being give below:

Breweries, Glass-wares, Cigarettes, Pharmaceuticals, Soap & Cosmetics, Biscuits, Milk & Milk products, Tea and Coffee, Hosiery & Footwear, Toys, Photographic Equipments, Textiles and Ready-made Garments, Frozen fish, Electric Goods, Refrigerator, Air-cooler and Fans, Electric Bulbs and Tubes, Hardware, Bicycle & Auto-Parts, Rubber & Rubber products, Stationery, Matches, Defence, Food Preservation Industry, Cashew nut Industry, Synthetic (Man-

made) Fibres, Horticulture produce tea, Tobacco & Textile, Apple, Cherry, Grapes etc.

## **TECHNICAL ASPECTS**

### **INSTALLED CAPACITY**

The installed capacity of the unit is about 300 MT per annum.

### **PLANT & MACHINERY**

The main items of the machinery required for the manufacture of Corrugated Boxes are given below:

1. One 4-Bar Rotary Cutting & Creasing Machine, 75" Size
2. One Eccentric Slotter Machine, 75" Size
3. Two Stitching Machines
  - i) One 36" arm, Angular head
  - ii) One 36" arm, Straight head.
4. One Partition Slotter, Automatic Machine
5. One Single Slotting Machine, 12" Size
6. One Vertical Bending Machine, 62" Size

**Total value of machinery is Rs. 16.00 lakhs**

### **MANUFACTURING PROCESS**

The process of manufacturing boxes or containers constitutes five operations.

1. Slitting or longitudinal Cutting
2. Creasing
3. Slotting
4. Flap or Corner Cutting
5. Stitching

After passing the sheet through these operations, a Box or a Container is ready. Slitting and Creasing operations can simultaneously be carried over a 4-bar Rotary Cutting Machine & Creasing Machine. The trimmed and creased sheet is

slotted and flap cut on an Eccentric Slotter Machine. Finally, it is either stitched over a Stitching Machine or glued/taped manually. For Partition boxes, the half slotted boards are used, which can conveniently be produced over a Partition Slotter Machine.

## RAW MATERIALS

Materials required for one MT	Required Qty	Cost per (MT/Kg)	Total Cost per MT
Kraft Paper (MT)	1.03		
Add: Waste (3%)	0.03		
	1.06	24000.00	25440.00
Adhesive (Kgs)	200	5.00	1000.00
Stitching Wire (Kgs)	15	45	675.00
Bundling/Packing Materials (Kgs)	3	47.00	141.00
Total Cost required per MT			27256.00
Annual Production		300	MT
<b>Annual cost of RM</b>		<b>81.77</b>	<b>lakhs</b>

## LAND AND BUILDING

An area of 2000 sqft is required for this project. The space can be arranged on lease. The rent is assumed at Rs. 20000 p.m and advance will be about Rs. 2.00 lakhs.

## UTILITIES

**Power:** The power requirement is 15 KW.

**Water:** Water is required for human consumption only.

**Manpower:** Labour requirement of the unit is estimated as follows.

Supervisor	1	8000.00	8000.00
Operators - Skilled Workers	6	5000.00	30000.00
Unskilled Workers	6	4000.00	24000.00

Accountant	1	5000.00	5000.00
			67000.00
Salaries per Annum			804000.00
Add: Benefits		20%	160800.00
<b>Total Salaries per Annum</b>			<b>96480.00</b>

## **IMPLEMENTATION SCHEDULE**

The machines are available from supplier within one month's period. The project can be implemented within a month period.

## **ASSUMPTIONS**

- The unit would work for 300 days on single shift basis. The unit can generate 300 MT boxes per annum.
- The selling price is assumed as Rs.38000/- per MT.
- Capacity utilization is assumed at 60%, 70% and 80% for first three years.
- Raw Materials cost is assumed at Rs 81.77 lakhs per annum at 100% level.
- Power charges works out to Rs.2.27 lakhs- per annum
- Wages & Salaries works out to Rs. 9.65 lakhs p.a. as per the detail given above with annual increase 5%.
- Repairs & Maintenance is assumed at Rs.0.24 lakh p.a (Rs. 2000 p.m) with annual increase 5%
- Depreciation calculated @ 15% on Plant & Machinery on WDV method.
- Selling, General & administrative expense is estimated at Rs.20,000 per month with annual increase 5%.
- Interest on TL is provided at 12% p.a. on reducing balance.
- Interest on Working Capital is calculated at 12% p.a.
- Income tax is provided at 33.22% on profit.

## **LIST OF MACHINERY SUPPLIERS**



1. MICRO MECHANICAL WORKS, 601, Delta, Hiranandani Gardens,  
Powai, Mumbai-400 076,
  2. Paper Board Machinery Co., Plot No. 115 DLF, ind. Area faridabad (India)
  3. SUN-UP (India) Engineering Industries, 1, Suyog Industrial Estate,  
Opp. Vikram Glass, L.B.S Marg, Vikhroli, Mumbai-400 079.
- SUPER SHEAR LINE
4. B/305, Rupal, Shivaji Chowk,  
Daftari Road,  
Malad (East),  
Mumbai- 400 097,
  5. ACME MACHINERY (INDIA) PVT. LTD, G-16, Shalimar Industrial Estate, Near  
Tata Power House, Matunga - (W), Mumbai - 400 019. INDIA.

### **DEALERS / MANUFACTURERS OF KRAFT PAPERS**

1. Chettiar & Co, No:19 Old No:9 Anderson Street, Chennai-600001
2. M/s. Arihant Paper & Boards, 80, Vellalar Street, Chennai-600058.
3. Besant Paper House, 64(New 90), Narayana Mudali Street, Chennai-600079.
4. Several other paper dealers in Anderson Street & Bunder Street, Chennai-600001.

## **FINANCIAL ASPECTS**

### **1. COST OF PROJECT**

**Rs. lakhs**

Land & Building-Rental Advance	2.00
Plant & Machinery	16.00
Other Misc. Assets	0.50
Pre-operative exp.	1.50
Margin for Working Capital	3.00
	<hr/>
	<b>23.00</b>

### **2. MEANS OF FINANCE**

Capital	11.00
Term Loan	12.00
	<hr/>
	<b>23.00</b>

### **3. COST OF PRODUCTION & PROFITABILITY STATEMENT**

**Rs. Lakhs**

<b>Year</b>	<b>1</b>	<b>2</b>	<b>3</b>
Installed Capacity (MT)	300.00	300.00	300.00
Utilisation (%)	60%	70%	80%

Production/Sales-MT	180.00	210.00	240.00
Sales Value (Rs. lakhs)	<b><u>68.40</u></b>	<b><u>79.80</u></b>	<b><u>91.20</u></b>
Raw Materials	49.06	57.24	65.41
Consumables	0.22	0.25	0.29
Power	1.36	1.59	1.82
Wages & Salaries	9.65	10.13	10.64
Repairs & Maintenance	0.24	0.25	0.26
Depreciation	2.45	2.09	1.77
Cost of Production	<u>62.98</u>	<u>71.55</u>	<u>80.19</u>
Selling, Adm. & Gen. Expenses	2.40	2.52	2.65
Interest on Term Loan	1.42	1.16	0.84
Interest on Working Capital	1.00	1.00	1.00
<b>Total</b>	<b><u>67.80</u></b>	<b><u>76.23</u></b>	<b><u>84.68</u></b>
Profit Before Tax	0.60	3.57	6.52
Provision for Taxes	0.21	1.21	2.22
Profit After Tax	<b>0.40</b>	<b>2.36</b>	<b>4.30</b>
Add: Depreciation	2.45	2.09	1.77
Total Cash Accruals	2.85	4.44	6.08

#### 4. ASSESSMENT OF WORKING CAPITAL

		Requirement	%	Margin	Bank
				Amount	Finance
Raw Marerials	1 month	4.09	25%	1.02	3.07
Finished Goods	1/4 month	1.31	25%	0.33	0.98
Debtors	1 month	5.70	25%	1.43	4.28
Expenses	1 month	0.22	100%	0.22	0.00
		<u>11.32</u>		<u>3.00</u>	<u>8.33</u>

Say Rs.

8.33

## 5. PROFITABILITY RATIOS BASED ON 80% UTILISATION

<u>Profit after Tax</u>	=	<u>4.30</u>	5%
Sales		84.68	
<u>Profit before Interest and Tax</u>	=	<u>8.36</u>	27%
Total Investment		31.32	
<u>Profit after Tax</u>	=	<u>4.30</u>	39%
Promoters Capital		11.00	

## 6. CALCULATION OF BREAK EVEN LEVEL

### FIXED EXPENSES

Power	1.82
Wages & Salaries	10.64
Repairs & Maintenance	0.26
Depreciation	1.77
Admn. & General Exp.	2.65
Interest in Term Loan	0.84
Total Fixed Expenses Cost(FC)	<u>17.98</u>

Profit Before Tax (P) 6.52

BREAK-EVEN LEVEL  $\frac{FC}{FC+P} \times 80\%$   
59% of installed capacity