13

Glass Hollow Ware (Mouth Blown Process)

PRODUCT CODE	:	94119 94131, 94132, 94133 94148, 94158, 94161 94168 and 94174
QUALITY AND STANDARDS	:	IS 1961: 1968 Glass Table wares. IS 1945: 1961 Glass Bottle for ink IS 1994: 1971 Glass container used for fruit preservation IS 1962 and 1974-Glass Bottle (wine) Glass Shells
MONTH AND YEAR OF PREPARATION	:	March, 2003
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Introduction

Hollow Glassware are made from silica sand and soda ash. Hollow Glassware contribute about 80% of total glass production. Major variety of hollow glassware items are given below:-

i. Different size and colours decorative cylindrical glass bottles
ii. Glass Tumblers
iii. Lemon Set
iv. Wine and bear mug and ice cream cup
v. Jar and jugs in different sizes and colour
vi. Lantern glass and chimney

There are about 19000 varieties of glass, which are manufactured in India.

Market Potential

Glass Hollow ware such as glass bottles, table ware, lemon set, tumbler, jar and chimney are being used since ancient times. These items have a great demand due to frequent use and regular breakage. Glassware are very much useful and essential for storage and packing of wine, food and chemicals etc. Demand of glass containers is increasing consistently. Glass containers are widely used in every household.

Basis and Presumptions

i. It has been taken into consideration that the unit will work on three shift basis for 300 days in a year.
ii. Production capacity-1st year 60%, 2nd year 70%, 3rd year onwards 80%.
iii. Labour and wages mentioned as per the prescribed Minimum Wages Act.
iv. Interest rate at 14% per annum
v. Margin money-25%
vi. Operative period of the project is about 10 years.
vii. The cost of land, construction charges, machinery and equipment, raw materials, and consumables, salaries and wages, other expenditure etc. indicated in the profile are based on the prices prevailing at the time of preparation. Therefore, they are subject to necessary changes from time to time based on the local condition.
viii. One time cullet would be used at the start of the furnace for melting. Cullet is produced there after during the regular melting and shaping process in the glass unit.

Implementation Schedule

Sl. No.	*Activity*	*Period (in months)*
1.	Land acquisition	2
2.	Building construction	8
3.	Purchase of machines	14
4.	Installation of machines	15
5.	Trial Production	16
6.	Commercial Production	18

Technical Aspects

Process of Manufacturing

Glass hollow ware are manufactured by mouth blown or semi automatic process as given below:

a) Preparation of Batch

Different raw materials are weighed in proportion and mixed in mixer. Cullet glass are mixed in the above mixer and fed into the glass furnace.

b) Melting of Batch

The batch is fed in the furnace and melted at temp. 1400-1500°C.

c) Shaping with Molten Glass

Molten glass is shaped by Mouth Blown Process. Molten glass (Gob) is taken out from furnace with the help of cast iron rods and blown, more glass is gathered and blown/pressed in the desired mould made of wood or metal.

These glassware are sent for annealing in the annealing chamber or leher to remove strains. Annealing is a process of slow cooling of glassware. The glassware are sorted and sent for packing.

Quality Control and Standards

BIS has published the following standard specifications for Hollow Glass ware:

Hollow Glass Ware

IS 1961:1968	Glass Table ware
IS 1945:1961	Glass Bottle for ink
IS 1994:1971	Glass container used for fruit preservation
IS 1962 and 1974	Glass Bottle (wine)

FINANCIAL ASPECTS

A. Fixed Capital

(i) Land	App. Cost. (Rs.)
About 2000 sq. m. land will be required for the project	16,00,000

(ii) Building

Particulars	Size	Area sq. m.	Rate (Rs./ Sq.M.)	Cost (Rs.)
Workshed	50×10	500 sq. m.	2000	10,00,000
Office	10×5	50 sq. m.	2500	1,25,000
Godown	10×10	100 sq. m.	2000	2,00,000
Laboratory	5×5	25 sq. m.	2500	62,500
Boundary Wall			LS	1,30,000
Factory Gate and Watchman room			LS	45,050
		Total		15,62,550
		or Say		31,62,550

(iii) Machinery and Equipments

Particulars	Indig-enous/ Imported	Nos	Cost (Rs.)
Oil Fired Tank Furnace 5 MT	Indigenous	1	25,00,000
Chimney	"	1	1,50,000
Anealing Lehr 4' x 75' fitted with heater and Motor 40 HP	"	1	2,50,000
Compressor 50 HP	"	1	2,50,000
Vacuum Pump	"	1	60,000
Moulds and Dies LS	"	-	30,000
Automatic batch mixer 5 HP	"	1	25,000
Screening machine with 1 HP motor	"	1	10,000
Magnetic Separator	"	1	15,000
Weighing machine	"	1	8,000
Oil tank storage capacity 50,000 litres	"	1	50,000
Rotary pump for furnace	"	2	10,000
Lathe machine 6'	"	1	20,000
Drill machine	"	1	3,000
Bench grinder 9"	"	1	4,000
Testing equipments	"	LS	5,000
	Total		33,90,000
Electrification and installation of machines and equipments @ 15%			1,87,500
Transformer			96,000
Cost of plant and machinery			36,73,500
Furniture and fixture of office block			30,000
	Total		37,03,500
(iv) Pre-operative Expenses			20,000
Total Fixed Capital			68,86,050

B. Working Capital (Per Month)

(i) Personnel

Description	Nos.	Salary/ month	Total (Rs.)
Manager	1	10,000	10,000
Glass Technologist	1	10,000	10,000
Foreman	2	5,000	10,000
Supervisor	6	4,000	24,000
Accountant	1	3,000	3,000
Clerk	2	2,500	5,000
Storekeeper	1	2,500	2,500

Description	Nos.	Salary/ month	Total (Rs.)
Skilled worker	24	2,100	50,400
Un-skilled worker	22	1,800	39,600
Peon cum watchmen	4	1,800	7,200
Sweeper	1	1,800	1,800
	Total		1,63,500
+15% perquisites			24,525
	Total		1,88,025
	or Say		1,88,000

(ii) Raw Material (per month)

Description	Qty.	Rate (Rs.)	Amount (Rs.)
Glass batch (Silica sand, soda ash and decoloriser	200MT	2000	4,00,000
Cullet Glass	100MT	1500Mt	1,50,000
Furnace Oil	50,000L	7/ltr.	3,50,000
Packing material	L.S.		50,000
		Total	9,50,000

(iii) Utilities (per month)		
Electricity	80 H.P.×0.73×0.8×8×25×4	37,376
Water	L.S.	2,000
	Total	39,376
	or Say	39,000

(iv) Other Contingent Expenses (per month)	(Rs.)
Postage and Stationery	1,000
Telephone	1,000
Repair and Maintenance	2,000
Transportation charges	5,000
Sales expenses	2,000
Misc. Expenses	2,000
Total	13,000

(v) Total Recurring Expenditure (per month)	(Rs.)
Salaries and wages	1,88,000
Raw materials	9,50,000
Utilities	39,000

Total Recurring Expenditure (per month)	(Rs.)
Other Contingent expenses	13,000
Total	11,90,000
(vi) Total Working Capital (on 3 months basis)	35,70,000

C. Total Capital Investment

Total fixed investment	Rs. 68,86,050
Total working capital	Rs. 35,70,000
Total	Rs. 1,04,56,050

FINANCIAL ANALYSIS

(1) Cost of Production (per annum)	(Rs.)
Total recurring cost	1,42,80,000
Depreciation on building @ 5%	78,127
Depreciation on machinery and equipment @ 10%	1,14,350
Depreciation on furniture and fixtures @ 20%	16,000
Interest on total investment @ 14%	14,63,847
Depreciation on furnace @ 20%	5,00,000
Total	1,64,52,324

(2) Sales (per year)	(Rs.)
2400 M.T. Hollow glasswares @ 9000 M.T.	2,16,00,000

(3) Net Profit (per year)

Sales – cost of production

Rs. 21,60,0000 – 1,64,52,324 = Rs. 51,47,676

(4) Net Profit Ratio

$$= \frac{\text{Net profit per year X 100}}{\text{Sales per year}}$$

$$= \frac{51,47,676 \times 100}{2,16,00,000}$$

$$= 23.83\%$$

(5) Rate of Return

$$= \frac{\text{Net Profit per year x 100}}{\text{Total Investment}}$$

$$= \frac{5147676 \times 100}{1,04,56,050}$$

$$= 49\%$$

(6) Break-even Point

Fixed Cost	(Rs.)
Depreciation on Building	78,127
Depreciation on machines and Equipment	1,14,350
Depreciation on furniture, fixture and minerals	16,000
Depreciation on Furnace	5,00,000
Installation Investment	14,63,847
40% of salary and wages	9,02,400
40% of other Contingent expenses	62,400
Total	31,37,124

$$\text{B.E.P.} = \frac{\text{Fixed Cost} \times 100}{\text{Fixed cost + Net Profit}}$$

$$= \frac{31,37,124 \times 100}{31,37,124 + 51,47,676}$$

$$= \frac{31,37,124 \times 100}{82,84,800}$$

$$= 38\%$$

Addresses of Machinery Suppliers

1. M/s. Import India Ltd.
   13-19, Gorva Industrial Estate,
   Vadodra,
   (Gujarat)
2. M/s. Alock and Co. (P) Ltd.
   7, Hasting Street,
   Kolkata-700001.
3. M/s. Saini Ltd.
   Vadodara
   (Gujarat).
4. M/s. Glass Equipments (India) Ltd.
   Bahadurgarh
   (Haryana)
5. M/s. Allied Research and Engineering (Pvt.) Ltd.
   Sangli,
   (Maharashtra)

Raw Material Suppliers

1. M/s. Raj Kamal Silica Works
   P.O. Shankergarh,
   Distt. Allahabad.
2. M/s. Ajmer Mineral Grinding Corporation
   Ajmer, (Rajasthan)
3. M/s. Pioneer Chemicals Co.
   Tilak Market, Sadar Bazar,
   Delhi-110006.
4. M/s. Standard Minerals
   8, S, Deviji Street,
   Mumbai-40003.

Borax

1. M/s. Borax Morarji Co. Ltd.
   Mahatma Gandhi Road,
   Ambernath, Distt. Thane
   (Maharashtra)

Soda Ash

1. M/s. Tata Chemicals
   Meethapur (Gujarat)
2. M/s. Sahn Chemicals Works
   Sahanpur, Varanasi.

Refractories

1. M/s. Belpahar Refractories Ltd.
   48, Chaurayee Road,
   Kolkata.
2. M/s. Carborundum Universal Ltd.
   11/12, North Bitch Road,
   Chennai.
3. M/s. Orissa Industries Ltd.
   P.O. Narang Distt.
   Cuttack (Orissa)
4. M/s. Kumar Dubhi Fire Clay and Silica Works
   P.O. Kumar Dubhi,
   Distt. Dhanbad.