

Sanitary Ware

| | |
|-------------------------------|---|
| PRODUCT CODE | : 94333 |
| QUALITY AND STANDARDS | : IS 771:1963 IS 771:1979 series IS 773 to 775 IS 2556 series IS 2781:1964 IS 2781:1975 |
| MONTH AND YEAR OF PREPARATION | : March, 2003 |
| PREPARED BY | : Small Industries Service Institute Narsapur X Roads, Balanagar, Hyderabad – 500 037 Phone. Nos. 23078131 – 133 Fax No. : 23078857 E-mail: sisihyd@hd2.net.in |

INTRODUCTION

Today sanitary wares are made from variety of materials each of them having certain advantages over the others. However, sanitary wares made of ceramic has many advantages over those made of other materials and are economical also. It has a wide acceptance in the society. The ceramic sanitary wares are used for sanitation purposes and the product ranges from washbasins, closets, urinals, sinks, baths to hoppers. It has properties like very good resistance to weathering, chemical erosion, mechanical strength and resistance to abrasion. Its use in sanitation has preference over other materials. In near future also the chance for replacing these items by other materials looks very black. They are economical, easy-to-clean, longer life and are available in pleasing colours.

MARKET POTENTIAL

The market for ceramic sanitary ware is very bright since its demand is increasing at a good rate. The reasons are not far to seek. The improved living standards coupled with good economic situations along with supporting Government policies for housing sector speak themselves for the demand of these products. There is large renovation activities taking place in the urban areas. All these factor ensure and creates a positive demand for these items. It is an essential and integral part of building construction in areas like housing, educational and research institutions, hospitals, industries, hotels and restaurants, cinemas and other public places.

The formation of Housing Development Finance Corporation and

lucrative financial scheme of Government and private banks and easy availability of finance at low rates of interest from banks has pushed the demand of building material due to all-round growth in the building construction sector. The role of the private sector, which accounts for the lion's share of investment in housing and construction has increased and it shall remain favourable.

The demand of ceramic sanitary wares is increasing day by day in rural and urban areas due to increased construction activities and changing sanitation habits. There are around 120 small scale units with an annual capacity of around 85,000 MT. The small scale industries are manufacturing mostly white coloured opaque sanitary ware which has a large demand in the rural areas. A number of units have also started manufacturing coloured variety of sanitary ware which is in great demand not only in the urban areas but has created a good export market also. The States and Central Govt. have launched a number of house building schemes and sanitation programmes across the country, which promises a good scope for the establishment of small-scale units.

BASIS AND PRESUMPTIONS

- i. It had been taken into consideration that the unit will work on single shift basis for 300 days in a year. The firing operations are, however, to be carried out continuously on three shift basis till particular firing cycle is complete in all respects
- ii. To achieve full plant capacity 1-2 months trial production is required
- iii. Interest rate is at 14%
- iv. Margin money will vary from 20-25% depending upon the location and scheme adopted by the entrepreneurs i.e. self employment or commercial scheme.
- v. Operative period of the project is around 10 years considering technology obsolescence rate and period of repayment of loan.
- vi. The costs of land, construction charges, cost of machinery and equipment, raw materials and consumables, salary and wages, other expenses etc. indicated in the profile are based on the prices prevailing at the time of preparation. Therefore, there are subject to necessary changes from time to time based on the local conditions.

IMPLEMENTATION SCHEDULE

| Sl. No. | Activity | Period | |
|---------|---|----------|--------------|
| | | Starting | Completion |
| 1. | Survey for collection of data in respect of demand Raw material, including power and fuel availability of technology, pollution control | 0 | to 2nd month |
| 2. | Arrangement of margin money | 2nd | to 3rd month |
| 3. | Preparation of project document and registration | 2nd | to 3rd month |
| 4. | Finance assistance | 4th | to 6th month |

| Sl. No. | Activity | Period | |
|---------|--|----------|---------------|
| | | Starting | Completion |
| 5. | Selection of site and development of land | 4th | to 6th month |
| 6. | Make shift office | | 7th month |
| 7. | Clearance for pollution | 3rd | to 6th month |
| 8. | Electricity, fuel and water tie-up for availability | 4th | to 6th month |
| 9. | Construction of building | 7th | to 10th month |
| 10. | Identification/selection of machine | | 5th month |
| 11. | Placement of order (Machine) | | 6th month |
| 12. | Transportation and installation of machine and equipment | 10th | to 11th month |
| 13. | Selection of raw material and placement of orders | | 9th month |
| 14. | Receipt of raw material | 10th | to 11th month |
| 15. | Installation of laboratory | 9th | to 11th month |
| 16. | Trial production | | 12th month |

TECHNICAL ASPECTS

Process of Manufacture

The non-plastic raw materials like quartz, felspar and some clays are crushed and ground to required fineness. They are unloaded in an agitator where more clay is added as per composition. The slip is screened, magnetized and kept in an agitating tank with addition of required flocculents. The wares are cast in plaster moulds. The wares are dried and finished and are kept on open racks for drying. The dried wares are tested for cracks and then applied glaze by spraying. It is then loaded in the kilns for firing at a temperature of about 1260°C. After firing they are sorted out and packed for sale.

Quality Control and Standards

The Bureau of Indian Standards has formulated and published the following specifications for maintaining the quality of the product and testing.

IS 771: 1963

IS 771: 1979 Series

IS 773 to 775

IS 2556 Series

IS 2781: 1964

IS 2789: 1975

Production Capacity (per annum)

Quantity : 1,200 M.T.

Value : Rs. 1,20,00,000.

Motive Power 95 HP.

Pollution Control

In this projects shuttle/tunnel kiln is recommended which is fuel efficient and hence comparatively non-polluting, however dust collecting equipment need be installed on crushing machine and the furnace be fitted with retrofitting for removal of obnoxious waste. The unit should obtain No Objection Certificate from State Pollution Control Board.

Energy Conservation

This industry needs energy conservation in fuel as well as in electricity. Ceramic fibre lined shuttle kiln proposed in the project profile is fuel efficient and the latest modern kiln which conserves fuel energy when compared with conventional ceramic D.D. kilns. Simple precautions and knowledge of effective utilization of electric power need be practiced.

FINANCIAL ASPECTS

A. Fixed Capital

| (i) Land and building | (Rs.) |
|---|-----------|
| Land 2400 sq.mtrs. @ Rs.200 per sq.mtr. | 4,80,000 |
| <i>Building</i> | |
| Office, stores, laboratory 300 sq.mtr @ Rs.2500 per sq. mtr. | 7,50,000 |
| Working shed 900 sq.mtr @ Rs.1,500 per sq.mtr. | 13,50,000 |
| Total | 25,80,000 |

(ii) Machinery and Equipments

Production Unit

| Description | Qty. (Nos.) | Price (Rs.) |
|--|----------------|----------------|
| Ball mill size 6ftx6ft complete with porcelain lining and grinding media with 1.0 HP motor | 2 | 3,00,000 |
| Ball mill size 3ftx3ft complete with porcelain lining grinding media with 5 HP motor | 4 | 3,00,000 |
| Agitator vat dia 10.5 ft and height 10.5 ft. Complete with 5 HP motor | 3 | 1,00,000 |
| Slurry pump cap.1000 ltrs. Per hr. with 5 HP motor | 1 | 20,000 |
| Magnetic seperator of permanent type | 1 | 10,000 |
| Spray booths complete with complete with air compressor spray guns etc. | 4 | 35,000 |

| Description | Qty. (Nos.) | Price (Rs.) |
|---|----------------|----------------|
| Testing Laboratory equipments and apparatus | L.S. | 40,000 |
| Ceramic fibre lined, shuttle kilns, oil fired, capacity 5 tonnes complete with firing system, loading cars and setters etc. with one extra car each | 3 | 30,00,000 |
| Oil pipe fitting for furnace | L.S. | 70,000 |
| Oil storage tank and pre heating system | L.S. | 40,000 |
| Deepwell pump set with over-head storage tank (2 HP) | L.S. | 60,000 |
| Installation and erection charges | L.S. | 78,000 |
| Drying racks and working table, slurry container etc. | L.S. | 2,00,000 |
| Office equipment and furniture | L.S. | 65,000 |
| Total cost of machinery and equipment | | 43,18,000 |
| (iii) Pre-operative (project cost, non-refundable, deposits etc. and other unforeseen expenses) | L.S. | 1,00,000 |
| Total fixed capital(i+ii+iii) | | 69,98,000 |

B. Working Capital (Per Month)

(i) Personnel (per month)

| Designation | Nos. | Salary | Total (Rs.) |
|----------------------|------|--------|-------------|
| Manager(Ceramist) | 1 | 8,000 | 8,000 |
| Supervisor | 5 | 5,000 | 25,000 |
| Accountant | 1 | 4,000 | 4,000 |
| Store keeper | 1 | 2,500 | 2,500 |
| Clerk/Typist | 3 | 2,000 | 6,000 |
| Skilled workers | 8 | 2,000 | 16,000 |
| Semi skilled workers | 10 | 1,500 | 15,000 |
| Un-skilled workers | 30 | 1,000 | 30,000 |
| Watchman/peon | 3 | 1,000 | 3,000 |
| Total | | | 1,09,500 |
| <i>15% of salary</i> | | | 16,425 |
| Total | | | 1,25,925 |

(ii) Raw Materials Including Packing Requirements (per month)

| Production | Qty. (tons) | Rate Rs (MT) | Value (Rs.) |
|-----------------------------|-------------|--------------|-------------|
| China clay | 13 | 1,500 | 19,500 |
| Ball clay/fire clay | 40 | 300 | 12,000 |
| Felspar powder | 30 | 800 | 24,000 |
| Quartz powder | 25 | 800 | 20,000 |
| Plaster of paris | 8 | 1,000 | 8,000 |
| Other colours and chemicals | L.S. | | 5,000 |
| Packing material | L.S. | | 8,000 |
| | Total | | 96,500 |

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

| | | |
|--|-------|----------|
| Power 13166 kWh unit @ Rs. 3.00 per unit | | 39,498 |
| Water | LS | 2,000 |
| Fuel furnace oil 35 kilo ltr @ Rs.8000/kt.ltr. | | 2,80,000 |
| Kiln furniture | LS | 20,000 |
| | Total | 3,41,498 |

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

| | |
|-----------------------------|--------------|
| Postage and stationery | 2,000 |
| Telephone | 2,000 |
| Consumable stores | 5,000 |
| Repair and Maintenance | 4,000 |
| Advertisement and publicity | 5,000 |
| Insurance | 3,500 |
| Misc. expenditure | 5,500 |
| | Total 27,000 |

(v) Total Recurring Expenditure (per month) Rs. 5,90,923

(vi) Total Working Capital (3 months basis) Rs. 17,72,769

C. Total Capital Investment

| | |
|-----------------|----------------------|
| Fixed capital | Rs. 69,98,000 |
| Working capital | Rs. 17,72,769 |
| | Total Rs. 87,70,769 |
| | or Say Rs. 87,71,000 |

MACHINERY UTILISATION

Ball mill 80% (on the basis of 24 hours working in a day)

Agitator 100% (on the basis of 24 hours working in a day)

1. Cost of Production (per year) (Rs.)

| | |
|--|------------------|
| Total recurring cost | 70,91,076 |
| Depreciation on building @ 5% | 1,05,000 |
| Depreciation on machinery and equipment @ 10% | 86,500 |
| Depreciation on kilns @ 20% | 6,14,000 |
| Depreciation on drying racks, hand tools Working tables etc. @ 25% | 50,000 |
| Depreciation on office equipment @ 20% | 13,000 |
| Interest on total capital investment @ 14% | 12,27,940 |
| | Total 91,87,516 |
| | or Say 91,88,000 |

(2) Turnover (per year)

| Item | Qty. | Rate per ton | Value (Rs.) |
|--------------------------|--------|--------------|-------------|
| Sanitary ware I quality | 600 MT | 11,000 | 66,00,000 |
| Sanitary ware II quality | 600 MT | 9,000 | 54,00,000 |
| | Total | | 1,20,00,000 |

(3) Net Profit (per year)

= Turnover (per year) – Cost of production
 = Rs. 28,12,000

(4) Net Profit Ratio

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

$$= \frac{28,12,000 \times 100}{1,20,00,000}$$

$$= 23.43\%$$

(5) Rate of Return

$$= \frac{\text{Net profit} \times 100}{\text{Investment}}$$

$$= \frac{28,12,000 \times 100}{87,71,000}$$

$$= 32.06\%$$

(6) Break-even Point

| Fixed cost | (Rs.) |
|--|-----------|
| Depreciation | 8,68,500 |
| Interest on total investment | 12,27,940 |
| Insurance | 42,000 |
| 40% of salary and wages | 6,04,400 |
| 40% of other contingent expenses excluding insurance | 1,12,800 |
| Total | 28,55,640 |

$$\begin{aligned}
 \text{B.E.P.} &= \frac{\text{Fixed cost} \times 100}{\text{Fixed cost} + \text{profit}} \\
 &= \frac{28,55,640 \times 100}{28,55,640 + 28,12,000} \\
 &= 50.39\%
 \end{aligned}$$

Additional Information

The scheme has been calculated with capital of 4 M.T. production per day. Since it is economical to purchase powdered quartz and felspar the same has been adopted.

Addresses of Machinery Suppliers

1. M/s. Amic Industries (P) Ltd.
85-D, Dr. Suresh Sicar Road,
Kolkata
2. M/s. Gidwaney Brothers
73, Netaji Subash Road,
P.B.No.2346,
Kolkata
3. M/s. Saboo Engg. Works
Kuchaman Road- 341509
(Rajasthan)
4. M/s. Perfect machine Tools
Corporation
1, Smith Road,
Chennai-1
5. M/s. St. Vincent Industries
Convent Road,
Kolkata

6. M/s. Jaycee Traders
12, Gitanjali,
1st Floor, P.B. No.378,
Mumbai-5
7. M/s. Bengal Lion Ind. Furnace Ltd.
D-828, New Friends Colony,
New Delhi-110066
8. M/s. Sharma Kiln Technology (P) Ltd.
4, Gujarati House,
Opp. Victoria Garden,
Lal Darwaja,
Ahmedabad – 380001
9. M/s. Unifire
16-13 Shakespere Sarani
4th Floor, Kolkata 700071

Raw Material Suppliers

1. M/s. Wolkam(P) Ltd.
Mewar Ind. Estate, P.B. No.21,
Udaipur (Rajasthan)
2. M/s. Multani Minerals
Station Road,
Thangadi(Gujarat)
3. M/s. Tahla Ram and Sons,
Rathkhna,
Bikaner, (Rajasthan)
4. M/s. Oriental Prespating Co.
1880/2, Opp. Desai Pot,
Khadra, Ahmedabad
5. M/s. Ompura Parn Shankar and
Sons
Thangadh,
Dist. Surendranagar (Gujarat)
6. M/s. United Minerals Ltd.
Comm. Building
102-E, Netaji Subash Road,
Kolkata
7. M/s. Ferro Castings and Colours Ltd.
Post Joka 24, Paraganas
Kolkata
8. M/s. Udar Enterprises
1, Gandhi Road,
Salem - 676007