

**Commissioner of Industries
Hyderabad
Andhra Pradesh**

Ceramic Colours

1. Nature of the Product and Its Applications:

Ceramic colours are pigments based on Zirconium and are used directly in enamel slip, pottery, coloured wall tiles, sanitaryware etc. Zirconium based yellow, blue, green and pink stains are used directly for producing coloured wall tiles, etc.

Overglaze Ceramic colours of low temperature are widely used for decoration on glazed ceramic articles and to manufacture ceramic transfers. Underglaze Ceramic colours are commonly used for decoration on unglazed ceramic articles which are finally covered with a transparent glaze. The underglaze colours beneath the transparent glaze are stable on firing the glaze upto 1200°C.

2. Market Potential :

Ceramic colours find application in different types of wall tiles, ceramic articles etc. In the modern age, ceramic wall tiles and other ceramic articles are being used increasingly. On the basis of the discussions held with experienced people in the industry, it is estimated that the demand for these products is in the region of Rs.65 crores per annum for the current year. The growth rate of 10% per annum is estimated for the next five years.

3. Installed Capacity :

The capacity of the unit is determined based on available market and minimum economic size.

The proposed installed capacity is 2400 Kg of pigments of different shades and 12 tonnes of glass flux (frit) per annum on the basis of one shift per day and 300 working days per annum.

4. Raw Materials :

The main raw materials are Glass Flux and pigments. 4 MT of raw batch of materials are required for every 3 MT of glass flux to be produced. Raw materials at the rate of Rs.120 per Kg. (average) are required for 600 Kg. of stains to be produced in 3 months. 30 crucibles, the rate which is Re.1 per crucible are required for stain calcination.

5. Manufacturing Process :

Central Glass & Ceramic Research Institute (CGCRI), Calcutta a constituent of Council of Scientific & Industrial Research (CSIR) has developed technology for manufacture of Ceramic colours. The manufacturing process essentially consists of the following 3 steps:

- The batch of constituents are mixed and then calcination of the batch in crucible at 1000° C to 1300°C in oil and electrically heated furnace is done depending the type of stain. Further processing includes washing of the calcined batch followed by fine grinding by wet milling.
- Overglaze Ceramic colours are produced by firstly melting at 100 a glass flux in the form of frit. The frit is then mixed with desired amount of stain (pigment) and finally ground by wet milling followed by drying and sieving.
- Underglaze ceramic colours are produced in the similar fashion as overglaze ceramic colours except that the glass flux for underglaze ceramic colour is only to be calcined at 1150°C-1200°C.

6. Plant & Machinery :

6.1 Major Equipments:

The unit requires major equipment such as 4 ball mills with a capacity of 615 Kg. each, oil fired crucible type furnace, rotary kiln and minor equipment such as weighing balance mixing trays and other accessories.

6.2 Suppliers of Equipments:

1. Paramount Chem-Plas Equipment (P) Ltd.,
Tilak Road, Hyderabad - 500 001.
2. Enfab,
C-2, II Floor, Shanti Nnvas,
Mettuguda, Secunderabad -17.
3. Chem Project Engineers
Plot No.B-35, BHE-AIC, R C Puram.
Hyderabad - 500 032.

7. Location :

Availability of the raw materials is the main consideration for the location of the unit. The other factors are nearness to the market, infrastructure facilities and cheap labour.

8. Infrastructure :

Manpower : 3 Nos. + Casual Labourers
Power : 2 HP

9. Cost of the Project and Means of Finance :

Cost of the Project:

	Particulars	Rs. Lakhs
a)	Land & Land development (400 Sq.Yds)	0.80
b)	Building & Civil construction (2000 Sq.ft)	3.30
c)	Plant and Machinery	6.05
d)	Miscellaneous Fixed assets	0.50
e)	Preliminary & Preparative Expenses	0.54
Total fixed capital		11.19
Worlang Capital Margin		0.48
Total Project Cost		11.67

Total working capital required in 1 year : Rs. 1.76 Lakhs

Means of Finance:

(Rs. Lakhs)

- Promoter's Contribution : 4.40
- Term Loan : 7.27

10. Annual Operating Expenses:

Assumed Operation @ 80% of Installed Capacity in 3rd year:

	Particulars	Rs. Lakhs
a)	Raw Material	7.65
b)	Packaging Material & Consumables	0.28
c)	Utilities	0.06
d)	Salaries & Wages - Prodn	0.43
e)	Factory Overheads	0.12
f)	Admn. & Management Expenses	0.60
g)	Financial Expenses:	0.88
	Interest on Term Loan	0.32
	Interest on Working Capital	
h)	Depreciation	0.41
i)	Selling Expenses	--
		10.75

Net Sales realisation : Rs. 13.92 Lakhs
 Pre-tax Profit : Rs. 3.17 Lakhs
 a) Break Even Point @80% Cap. Utilisation : 37.50%
 b) Rate of return on Investment before taxes : 27.16%