

**Commissioner of Industries
Hyderabad
Andhra Pradesh**

Phthalocyanine Blue

1. Nature of the Product and Its Applications:

Phthalocyanine pigments hold significant position in the pigment trade owing to their excellent properties such as resistance to alkalies and acids, non-bleeding in solvents, brilliancy of colour, tinting strength, covering power and light fastness. They dominated the market within a short period of their introduction into the market.

The metal phthalocyanines are highly coloured blue to green products and a host of metals can be used. However, copper phthalocyanine is the most brilliant of all.

2. Market Potential :

The copper phthalocyanine is the most sought after pigment alongwith its derivatives like the green (chlorinated) and the sulphonated dyes. It has wide applications in paints, printing inks, paper colouring, textiles (the dye), rubber, plastics, water colours etc. There is an export market for the blue as well as its derivatives. At present there are about ten producers in the country manufacturing phthalocyanine blue with a total annual capacity of about 2000 tonnes.

However, looking at the increasing application to which the pigments is put, it can be safely said that the pigment has very good future and small scale units manufacturing the pigment will have prospects for the development.

3. Installed Capacity :

It is proposed to establish the unit with an installed capacity to manufacture 300 tonnes of phthalocyanine blue per annum, based on three shifts operation per day and 300 working days in a year.

4. Raw Materials :

The raw materials required for manufacturing phthalocyanine blue are phthalimide, urea, cupric chloride, catalyst, alkali and acid. The above raw materials can be sourced from local chemical dealers/agents.

5. Technology/Manufacturing Process :

The reactants, phthalimide, cupric chloride, urea and ammonium molybdate are taken in requisite proportions in powdery form, mixed thoroughly and packed densely in the reactor. The reactor has two outlets, one connected to vacuum and the other connected to a trap.

After evacuating for a few minutes, the reactor is heated to 150° rapidly and kept at this temperatures till the smell of Ammonia is felt. Then the vacuum is closed and the trap outlet is opened and the reactor is heated to 350°C. The trap contains dilute acid into which the ammonia enters and gets neutralised. Also the products like biuret and cinuric acid, if formed, may also get volatilised and condense in the trap along with the ammonium chloride formed during the reaction. Thus, most of the side products are formed within two hours and then the trap is replaced by fresh water and the reactor is allowed to cool. The water enters the reactor and brings down the temperature below 100 degree C thus avoiding the risk of burning the material. Instead of fresh water, the trap may be loaded with dilute alkali and the whole contents of the reactor are taken out and stirred well. This avoids any side products from contaminating the product as all the side products are soluble in the alkali and can be removed by filtration and washing. The washed and

fried product can be used for the production of phthalocyanine blue pigment and a host of other derivatives.

The technical know-how can be supplied by Regional Research Laboratory, Bhubaneswar.

6. Plant and Machinery :

6.1 Major Equipments:

The equipments required for the proposed unit are pulverisers, mixer, reactors, ball mill, mixing tank with stirrer, rotary press, rotary/tray driers and pumps etc. Other miscellaneous equipments like electrical & piping installations are required.

6.2 Suppliers of Equipments:

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

7. Location

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

8. Infrastructure :

Manpower : 64 Nos.
Power : 75 HP
Process Water : 2 KL/day
Fuel (Firewood) : 0.5 T/day

9. Project Cost And Means Of Finance :

Cost of the Project:

	Particulars	Rs. Lakhs
a)	Land & Land development	1.25
b)	Building & Civil construction	21.30
c)	Plant and Machinery	19.95
d)	Miscellaneous Fixed assets	10.25
e)	Preliminary & Pre-operative Expenses	3.31
	Total fixed capital	56.06
	Working Capital Margin	13.11

Total Project Cost	69.17
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Total working capital required in I year : Rs. 48.90 Lakhs

Means of Finance: (Rs. Lakhs)
Promoter's Contribution : 33.38
Term Loan : 35.79

10. Annual Operating Expenses :

Assumed Operation @ 70% of Installed Capacity in 3rd year:

Particulars	Rs. Lakhs
a) Raw Material	262.71
b) Packaging Material & Consumables	10.71
c) Utilities	6.88
d) Salaries & Wages - Prodn.	9.30
e) Factory Overheads	0.82
f) Admn. & Management Expenses	13.48
Financial Expenses:	4.231
g) Interest on Term Loan	0.02
Interest on Working Capital	
h) Depreciation	3.35
i) Selling Expenses	7.14
	328.64

Net Sales realisation : Rs.357.00 Lakhs
Pre-tax Profit : Rs. 28.36 Lakhs

- a) Break Even Point @70% Cap. Utilisation : 49.87%
b) Rate of return on Investment before taxes : 41.00%