

# **PRE-FEASIBILITY REPORT FOR THE PRODUCTION OF ULTRAMARINE BLUE PIGMENT**

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## **1. Introduction of Technology/Process/Product:**

### **Name of Technology/Process/Product:**

Production of Ultramarine Blue Pigment

### **Summary:**

Pigment is an inorganic or organic coloring matter, usually in the form of an insoluble powder that is mixed with oil, water etc. and chosen for properties such as beauty, opacity, preservative ability, durability and performance. Ultramarine blue is a strong blue pigment of sodium aluminosulphosilicate. This pigment consists of alumino-silicate framework containing sodium cations and polysulphides anions and is prepared from Swat China Clay. The pigment is non-toxic, resistant to high temperature (350 °C), resistant to alkalis and poor resistant to acids. Its light fastness properties are good.

### **Project brief (*Local/International Perspective*):**

Ultramarine Blue Pigment is produced from locally available raw materials. The product has a growing demand in the textile, paper and polymer industry. An investment in the project will not only help the country in import substitution but also serve as a valuable export commodity.

## **2. Main Parameters of Technology/Process/Product:**

### **Main Feature:**

- Strong blue pigment
- Non-toxic
- Resistant to high temperature
- Resistant to alkalis

### **Input (*Raw materials with specifications*):**

Commercial grade

- China Clay
- Sulphur
- Sodium Carbonate
- Charcoal

**Output (Products, byproducts with specifications):**

**Product: Degreasing Agent**

- |                        |       |
|------------------------|-------|
| • Moisture             | 0.08% |
| • Water soluble matter | 2.05% |
| • Free sulfur          | 0.27% |
| • Density              | 1.429 |

**Byproducts: Nil**

**Applications/Uses:**

- Production of laundering detergents
- Soaps
- Textile printing inks
- Synthetic fibers
- Blue mats
- Paper and paper coating
- Plastics
- Food packaging
- Containers

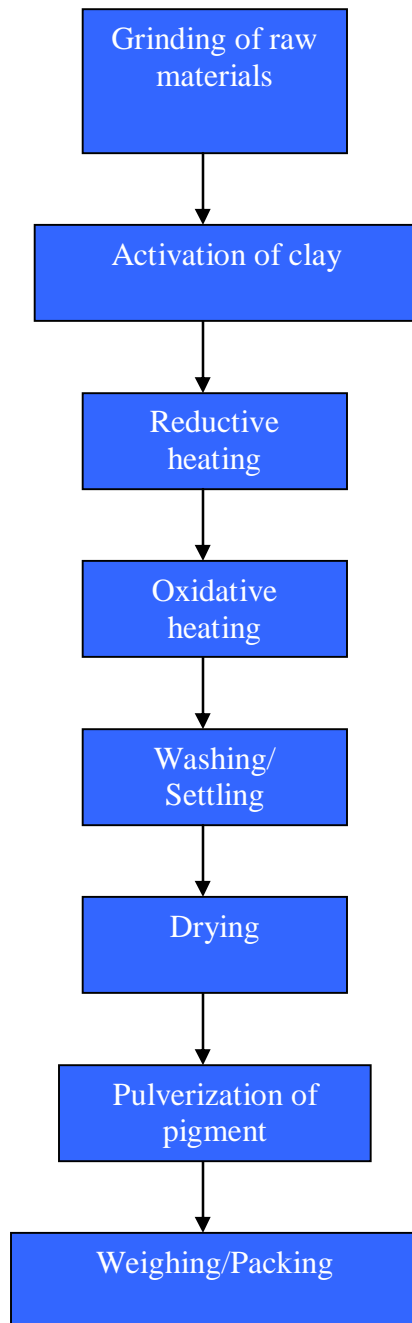
**Trial Results:**

Successful

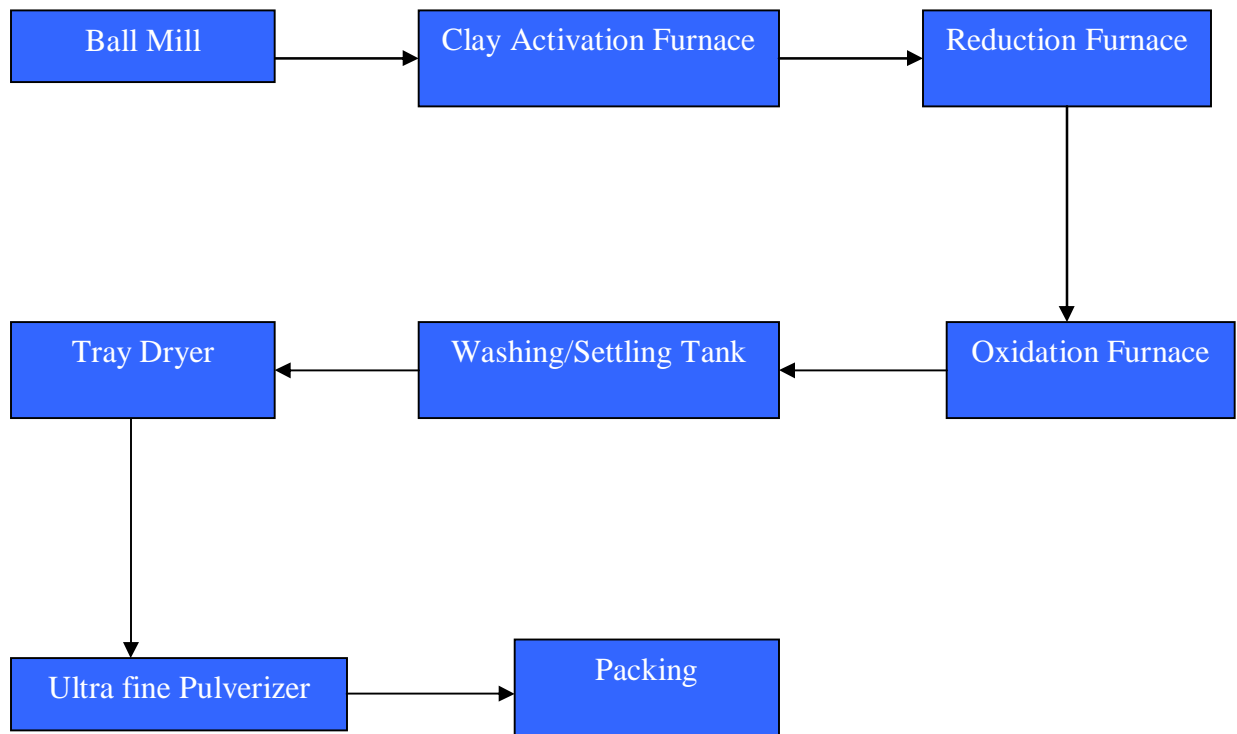
**Technical Data:**

Proposed capacity	100 kg/day
Production time per batch	2 hours
Packing size	1kg

**Production Process/Flow Diagram:**



**Equipment Layout diagram:**



**Machinery required with specification:**

<b>S. No</b>	<b>Item</b>	<b>Description</b>	<b>Qty</b>	<b>Cost (Million Rs)</b>
1.	Ultra fine Pulverizer	Capacity: 100 kg Product size: 400 mesh	01	3.00
2.	Ball Mill	Capacity: 200 kg Product size: 250 mesh	01	1.00
3.	Clay Activation Furnace	Capacity: 50 kg Temperature: 1000 °C	01	0.25
4.	Oxidation Furnace	Capacity: 50 kg Temperature: 1000 °C	01	0.25
5.	Reduction Furnace	Capacity: 50 kg Temperature: 1000 °C	01	0.25
6.	Washing/Settling Tank	Capacity: 500 Liter	01	0.05
7.	Kneader Mixer	Capacity: 200 kg	01	1.00
8.	Tray Dryer	Capacity: 200 kg	01	0.50
9.	Feeding Hoppers	Capacity: 100 kg each	05	0.25
10.	Conveying systems with conveyer belts	Length: 10 ft each Electric driven	06	0.50
11.	Weighing Scale	Range: 200 kg each	02	0.20
<b>Total</b>				<b>7.25</b>

**Standard specifications & test methods:**

Specifications of Ultramarine Blue Pigment are,

- Moisture 0.08%
- Water soluble matter 2.05%
- Free sulfur 0.27%
- Density 1.429

**Quality control equipment with specifications:**

S. No	Item	Quantity	Cost (Million Rs)
1.	pH Meter (Digital)	01	0.20
2.	Glassware	01	0.10
3.	Chemicals	01	0.10
4.	Precision Weighing Balance	01	0.15
5.	Heating Oven (300 °C)	01	0.50
6.	Furnace (1000 °C)	01	0.50
<b>Total</b>			<b>1.55</b>

**Environmental Impact:**

Environment friendly

**Availability of technical support:**

Available

**Available of Brochures/Pamphlets:**

Available

**Status of registration/Patent/Trade Mark:**

Nil

### 3. Estimation of Fixed Capital Investment (PKR):

**Land:**

Land (Proposed area: 0.25 acre)

**Building:**

Rs. 10.00 million

**Furniture and Fixture:**

Rs. 0.25 million

**Plant & Machinery:**

Sr. No	Description	Cost (In million Rs)
1.	Machinery/Equipment	7.250
2.	Installation and Erection cost @ 6%	0.435
3.	Instrumentation and Control @ 5 %	0.363
4.	Services facilities including designing, consultancies etc @ 5 %	0.363
5.	Lab Equipment and Miscellaneous items	1.550
	<b>Total</b>	<b>9.961</b>

**Technology Transfer fee:**

Rs. 5.00 Million

**Total Fixed cost of the Project:**

Sr. No	Description	Cost (In million Rs)
1.	Land (Proposed area: 0.25 acre)	-
2.	Building	10.000
3.	Furniture and fittings	0.250
4.	Plant & Machinery	9.961
	<b>Total Fixed cost of the Project</b>	<b>20.211</b>

**Total Project Cost**

<b>Sr. No</b>	<b>Description</b>	<b>Cost (In million Rs)</b>
1.	Total Fixed cost of the Project	20.211
2.	Working capital	2.460
	<b><i>Total Project Cost</i></b>	<b>22.671</b>

**4. Marketing Aspects:****Total industry and annual growth:**

Nil

**Current demand:**

35 ton/ year

**Local production facilities:**

Nil

**Imports:**

Rs. 20.00 Million per year

**Major users:**

- Soap/detergent industry
- Textile/fiber industry
- Paper industry
- Plastic industry
- Packaging industry

**Marketing strategy:**

- Supply of samples to SMEDA for marketing
- Distribution of brochures among stakeholders
- Display of the samples at various chambers of commerce and industry
- Publicity through electronic and print media
- Holding of seminars and exhibitions

**Details of Cost:**

<b>Sr. No</b>	<b>Description</b>	<b>Cost (Rs)</b>
1.	Direct Production Cost	388/kg
2.	Raw materials cost per unit	100.00/kg
3.	Direct wages cost per unit	45.00/kg
4.	Production overheads cost per unit	2.00/kg
4.	Admin and selling expenses per month	20,000.00
4.	Salaries and benefits per month	200,000.00
5.	Utilities charges per month	250,000.00
6.	Communication expenses	5,000.00
7.	Publicity and advertisement expenses per month	10,000.00