PROJECT PROFILE
ON
CHROMUM PLATING ON ABS PLASTIC

PRODUCT                          :  CHROMUM PLATING ON ABS PLASTIC

PRODUCT CODE        :  339967005

QUALITY & STANDARDS      :  IS: 1068-1993 for Copper, Nickel and Chromium Electrode deposited coating

PRODUCTION CAPACITY        :  Quantity : 25,000 Sq. mtrs.
                             Per Annum

Value             :  Rs.75,00,000/-

MONTH & YEAR         :  FEBRUARY, 2011

PREPARED BY         :  MSME-DEVELOPMENT INSTITUTE
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1. **INTRODUCTION:**

Plastic can be readily moulded into intricate shapes and the light weight and ease of fabrication in plastics may be combined with certain desirable characteristics of metal by plasting the tensile impact properties and abrasion resistance of plastics are improved by metal coating. The applications of metallized plastic include P.C.B.S. draw pulls doorknobs automobile and electric appliances hardwares, frontguards, push buttons and regulators knobs for fan cooler etc. Plastics that can be plated are phenol formaldehyde, melamin, acrylics epoxide and Acrylonitrile Butadiene Styrene (ABS).

2. **MARKET:**

ABS Moulded Components with chrome finish are being increasingly used for various engineering and other automobile accessories computer hardwares. There exist sufficient scopes for new job plating units for plating of ABS plastic moulded components.

This item can also be marketed as ancillary items to other industries like Radio, T.V. Industries, Electronic and Electrical Industries, Automobile Industries etc. from the production of 1500 M.T. in 1950. The production of ABS has since increased 200000 M.T. A considerable part of this production is expected to be plated which is a fair demand for this industry.

3. **BASIS & PRESUMPTIONS:**

(i) The efficiency of the unit is calculated at 70% of the total production capacity. The unit will work 25 days a month on single shift basis and 300 days in a year.

(ii) The time period for achieving the full envisaged capacity utilization is six months after starting of production.

(iii) The labour wages are as per the prevailing rates in the market.

(iv) The rate of interest for fixed and working capital is taken as 14%

(v) The margin money requirement for the project is 30 per cent.

(vi) The pay back period of this project is 3 years.
4. **IMPLEMENTATION SCHEDULE:**

   - The time requirement for preparation of Project Report: Two months
   - Time requirement for selection of site: One month
   - Time required for registration as small scale unit: One month
   - Time required for acquiring the loan: Two months
   - Construction of building: Three months
   - Machinery procurement, erection and commissioning: One month
   - Recruitment of labourer etc.: One month
   - Trial runs: One month

5. **TECHNICAL ASPECTS:**

   **Process Outline**

   The process of electroplating on plastics is similar to that on metals with the difference that the former are made conducting by some treatments before electroplating. The preparatory operations on plastic substrates include etching or conditioning, sensitizing, activation and electroless plating.

   The degree of adhesion of plate to plastic depends on a number of factors. The most important of which are the particular ABS resin the conditions under which the plastic was moulded and the conditioning treatment special grade of ABS specifically formulated for plating generally plate with greater adhesion than non-plating grades.

6. **FLOW PROCESS CHART:**

   The following sequence of operation is usually followed for plating on **ABS**:

   1. Preclean of item
   2. Cold water rinse
   3. Neutralization
   4. Cold water rinse
7. **QUALITY & STANDARD:**

   IS:1068-1993 for Copper, Nickel and Chromium electrodeposited coatings.

8. **PRODUCTION CAPACITY (PER ANNUM):**

   Quantity : 25000 Sq. mtrs.
   Value     : Rs. 75,00,000/-

9. **MOTIVE POWER REQUIREMENT:**

   The power requirement is 30 KWH, 3 Phase 440 Volts.

10. **POLLUTION CONTROL MEASURES:**

    Since this unit has been classified as pollution making industry, the No Objection Certificate has to be taken from the State Pollution Control Board. However, a suitable arrangement has been made to control the pollution problem.

11. **ENERGY CONSERVATION:**

    Proper insulation of bath and other related pipes should be made so that the wasting of energy can be saved.

12. **FINANCIAL ASPECTS:**

    (i) **Fixed Capital**

        **Land & Building**

        | Area Sq. Mtrs. | Rate Rs./Sq. Mtr. | Value (Rs.)   |
        |----------------|-------------------|---------------|
        | Land           | 200               | 2000/-        | 4,00,000/-   |
        | Building       | 100               | 5000/-        | 5,00,000/-   |
        |                |                   |               | 9,00,000/-   |

        Total : 9,00,000/-
(ii) Machinery & Equipment

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Description of Machines</th>
<th>Qty.(Nos.)</th>
<th>Value (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) 1.</td>
<td>Production Unit</td>
<td>1</td>
<td>2,00,000/-</td>
</tr>
<tr>
<td></td>
<td>Oil Cooled Silicon Rectifier with stepless control, output current rating 1000 amps.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Output voltage 12 V complete with Metal Panel etc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Filtration unit for Bright Nickel with 2 HP Motor and 16 plates</td>
<td>1</td>
<td>32,000/-</td>
</tr>
<tr>
<td>3.</td>
<td>Filter unit for Acid Copper with 2 HP Motor 16 plates 2800 RPM</td>
<td>1</td>
<td>32,000/-</td>
</tr>
<tr>
<td>4.</td>
<td>Bright Nickel Tank Capacity 1500 Ltr.</td>
<td>1</td>
<td>65,000/-</td>
</tr>
<tr>
<td>5.</td>
<td>Chrome tank cap. 300 litres</td>
<td>1</td>
<td>4,000/-</td>
</tr>
<tr>
<td>6.</td>
<td>Acid copper tank capacity 500 litres</td>
<td>1</td>
<td>15,000/-</td>
</tr>
<tr>
<td>7.</td>
<td>Drag out Tank</td>
<td>2</td>
<td>10,000/-</td>
</tr>
<tr>
<td>8.</td>
<td>Neutralization tank cap. 300 litres</td>
<td>1</td>
<td>5,000/-</td>
</tr>
<tr>
<td>9.</td>
<td>Sensitizing tank</td>
<td>1</td>
<td>5,000/-</td>
</tr>
<tr>
<td>10.</td>
<td>Etching tank 2’x2’x2’ Ms/5mm L.L.</td>
<td>1</td>
<td>40,000/-</td>
</tr>
<tr>
<td>11.</td>
<td>Polishing machine motorized 2 HP</td>
<td>1</td>
<td>13,000/-</td>
</tr>
<tr>
<td>12.</td>
<td>Immersion Heaters 3 KW Lead banding M.S.</td>
<td>2</td>
<td>7,000/-</td>
</tr>
<tr>
<td>(b)</td>
<td>Testing Equipment like different Reagent, Glassware, P.H. Meter</td>
<td>L.S.</td>
<td>1,00,000/-</td>
</tr>
<tr>
<td>(c)</td>
<td>Pollution Control equipment unit</td>
<td></td>
<td>2,00,000/-</td>
</tr>
<tr>
<td>(d)</td>
<td>Electrification and Installation charges @ 10% of cost of machinery</td>
<td></td>
<td>70,000/-</td>
</tr>
<tr>
<td></td>
<td>Total cost of machinery &amp; equipment</td>
<td></td>
<td>7,98,000/-</td>
</tr>
<tr>
<td></td>
<td>Cost of office equipment/working table/computer</td>
<td></td>
<td>1,50,000/-</td>
</tr>
<tr>
<td></td>
<td>Total Rs.</td>
<td></td>
<td>9,48,000/-</td>
</tr>
</tbody>
</table>

(iii) Pre-operative Expenses 50,000/-

(Project cost, non-refundable)

Total Fixed Capital  = (i+ii+iii)

Fixed Capital = 9,00,000

Machinery & Equipment 9,48,000

Pre-operative Expenses 50,000

= 18,98,000/-
13. **WORKING CAPITAL (PER MONTH)**

(A) **Staff & Labour**

<table>
<thead>
<tr>
<th>Designation</th>
<th>Nos.</th>
<th>Salary (Rs.)</th>
<th>Total (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chief Chemist cum Manager</td>
<td>1</td>
<td>10,000/-</td>
<td>10,000/-</td>
</tr>
<tr>
<td>Skilled Worker</td>
<td>1</td>
<td>6,000/-</td>
<td>6,000/-</td>
</tr>
<tr>
<td>Workers</td>
<td>6</td>
<td>4,000/-</td>
<td>24,000/-</td>
</tr>
<tr>
<td>Accountant cum Store Keeper</td>
<td>1</td>
<td>5,000/-</td>
<td>5,000/-</td>
</tr>
<tr>
<td>Clerk cum Typist</td>
<td>1</td>
<td>4,500/-</td>
<td>4,500/-</td>
</tr>
</tbody>
</table>

Total salaries + perquisites @ 15%

<table>
<thead>
<tr>
<th></th>
<th>Total :</th>
<th>Or say :</th>
</tr>
</thead>
<tbody>
<tr>
<td>49,500/-</td>
<td>7,425/-</td>
<td>56,925/-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>57,000/-</td>
</tr>
</tbody>
</table>

(B) **Raw Materials**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Particulars</th>
<th>Qty. (kgs.)</th>
<th>Rate (Rs./kg or litre)</th>
<th>Value (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bright Nickel Salt</td>
<td>80</td>
<td>430/kg.</td>
<td>34,400/-</td>
</tr>
<tr>
<td>2</td>
<td>Brightner (initial make up)</td>
<td>12</td>
<td>400/ltr.</td>
<td>4,800/-</td>
</tr>
<tr>
<td>3</td>
<td>Brightner Maintenance</td>
<td>22</td>
<td>400/ltr.</td>
<td>8,800/-</td>
</tr>
<tr>
<td>4</td>
<td>Decorative chrome salt</td>
<td>32</td>
<td>400/kg.</td>
<td>12,800/-</td>
</tr>
<tr>
<td>5</td>
<td>Nickel Anode (4”x4”)</td>
<td>40</td>
<td>2600/kg.</td>
<td>1,40,000/-</td>
</tr>
<tr>
<td>6</td>
<td>Copper Anode</td>
<td>17</td>
<td>480/kg.</td>
<td>8,160/-</td>
</tr>
<tr>
<td>7</td>
<td>Soak Cleaner</td>
<td>32</td>
<td>100/kg.</td>
<td>3,200/-</td>
</tr>
<tr>
<td>8</td>
<td>Neutralizer</td>
<td>32</td>
<td>50/ltr.</td>
<td>1,600/-</td>
</tr>
<tr>
<td>9</td>
<td>Sensitizer</td>
<td>32</td>
<td>1800/ltr.</td>
<td>57,600/-</td>
</tr>
<tr>
<td>10</td>
<td>Etchant</td>
<td>77</td>
<td>185/ltr.</td>
<td>14,245/-</td>
</tr>
<tr>
<td>11</td>
<td>Immersion Nickel Concentrate (A)</td>
<td>42</td>
<td>350/ltr.</td>
<td>14,700/-</td>
</tr>
<tr>
<td>12</td>
<td>Immersion Nickel (B)</td>
<td>42</td>
<td>330/ltr.</td>
<td>13,860/-</td>
</tr>
<tr>
<td>13</td>
<td>Acid Copper Brightner (Additive)</td>
<td>17</td>
<td>350/ltr.</td>
<td>5,950/-</td>
</tr>
<tr>
<td>14</td>
<td>Misc. chemicals viz. caustic soda, sulphuric acid, copper wire, PH Paper, Hydrogen Peroxide activated Carbon</td>
<td>L.S.</td>
<td></td>
<td>20,000/-</td>
</tr>
</tbody>
</table>

Total : 3,40,115/-

Or say : 3,40,000/-
### Utilities (Per Month)  
**Power**: 30 KWH @ 5.50 per unit  
\[(30 \text{ KWH} \times 8 \text{ Hrs.} \times 25 \text{ days} \times 5.50)\]  
**Water**: L.S.  
---  
**Total**: 38,000/-

### Other Contingent expenses (Per Month)  
- **Postage & Stationery**: 2,000/-  
- **Telephone**: 2,000/-  
- **Consumable Stores**: 1,500/-  
- **Repairs & Maintenance**: 3,500/-  
- **Transportation charges**: 2,000/-  
- **Advertisement & Publicity**: 2,000/-  
- **Insurance**: 3,000/-  
- **Miscellaneous Expenditure**: 2,000/-  
---  
**Total**: 18,000/-

### TOTAL WORKING CAPITAL (PER MONTH)  
\[(A+B+C+D)\]  
**Working Capital (Per Month)**: 57000/-  
- **Raw Materials**: 340000/-  
- **Utilities (Per Month)**: 38000/-  
- **Other Contingent expenses (Per Month)**: 18,000/-  
---  
**Total**: 4,53,000/-

### TOTAL CAPITAL INVESTMENT:  
- **Fixed Capital**: 18,98,000/-  
- **Working Capital for 3 months**: 13,59,000/-  
---  
**Total**: 32,57,000/-

### FINANCIAL ANALYSIS:  
1) **Cost of Production (Per Year)**  
\[(\text{Rs.})\]  
- **Total recurring cost per year**: 54,36,000/-  
- **Depreciation on Building @ 5%**: 25,000/-  
- **Depreciation on machinery @ 10%**: 79,800/-  
- **Depreciation on Office Equipment @ 20%**: 30,000/-  
- **Interest on total capital investment @ 14%**: 4,55,980/-
Total cost of production  

60,26,780/-

2) Sales/Turnover (per year)

<table>
<thead>
<tr>
<th>Item</th>
<th>Qty. (sq. mtrs.)</th>
<th>Rate/sq.mtr (Rs.)</th>
<th>Amount (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chromium Plating on ABS job work on various types</td>
<td>25000</td>
<td>300</td>
<td>75,00,000/-</td>
</tr>
</tbody>
</table>

3) Turnover (Rs.)

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost of Production (Rs.)</th>
<th>Profit (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>75,00,000</td>
<td>60,26780</td>
<td>14,73,220</td>
</tr>
</tbody>
</table>

4) Net Profit Ratio  

\[
\text{Net Profit Ratio} = \frac{\text{Net Profit} \times 100}{\text{Turnover Per Year}}
\]

\[
= \frac{14,73,220 \times 100}{75,00,000} = 19.64\%
\]

5) Rate of Return  

\[
\text{Rate of Return} = \frac{\text{Net Profit} \times 100}{\text{Total Investment}}
\]

\[
= \frac{14,73,220 \times 100}{32,57,000} = 45.23\%
\]

6) Break-even Point

<table>
<thead>
<tr>
<th>Item</th>
<th>(Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Depreciation on Building</td>
<td>25,000/-</td>
</tr>
<tr>
<td>b) Interest on total investment</td>
<td>4,55,980/-</td>
</tr>
<tr>
<td>c) Insurance</td>
<td>36,000/-</td>
</tr>
<tr>
<td>d) 40% of salary and wages</td>
<td>2,73,600/-</td>
</tr>
<tr>
<td>e) 40% of other contingent expenses</td>
<td>86,400/-</td>
</tr>
<tr>
<td>Total</td>
<td>87,6980/-</td>
</tr>
<tr>
<td>say</td>
<td>8,77,000/-</td>
</tr>
</tbody>
</table>

\[
\text{B.E.P. \%} = \frac{\text{Fixed Cost} \times 100}{\text{Fixed Cost} + \text{Net Profit}}
\]

\[
= \frac{8,77,000 \times 100}{8,77,000 + 14,73,220} = 37.31\% 
\]
17. NAMES & ADDRESSES OF MACHINERY SUPPLIERS:

1. M/s. Grauer & Well (India) Ltd.,
   Sukh Sagar, 6th Floor
   N.S. Patkar Marg Coupatty
   Mumbai-400 007.

2. M/s. Canning Mitra Phoenics Ltd.,
   Eucharstic Congress Building III,
   Mumbai-400 039.

   Plot No. 1/33, Phase IV, GIDC,
   Vithal Udyognagar – 388 121
   Dist. Anand (Gujarat)

4. M/s. S.S. Engineering,
   C-1-B, Hatkesh Udyognagar
   Kashmira Byander Road
   Mumbai-401 104.

5. M/s. Technocrat (India)
   Plot No. 21, Gali No. 28 (Opp: Gali No. 4)
   Railway Line Side
   Anand Parbat Industrial Area
   Near Rohtak Road
   New Delhi-110 005.

6. M/s. Rectiers & Controls
   17/3, Mathura Road
   Faridabad-121 002.

7. M/s. Jindal Rectifiers
   4/B, 4th Floor, DCM Building
   16, Barakhamba Road
   New Delhi-110 001.

7. M/s. Vijay Industries
   B/10, Phase-II
   Mayapuri Industrial Area
   New Delhi-100 064.
18. NAMES & ADDRESSES OF RAW MATERIAL SUPPLIERS:

1. M/s. Mahavir Chemical Industries  
   Mahavir Estate  
   B/h. Shah Chambers  
   Nr. C.T.M. Cross Lane  
   Amraiwadi, Ahmedabad.

2. M/s. Delta Chemicals  
   6, Delta House  
   J-1, Cama Zone, Goregaon (E)  
   Mumbai-400099.

3. M/s. Komal Agency  
   4, Sivangi Colony  
   Near Darpan Cinema  
   Andheri (E), Mumbai-400099.

4. M/s. Manish Sales Corporation  
   178, Chetan Cloth Market  
   Sarangpur Gate  
   Ahmedabad-380001.

5. M/s. Techno Enterprises  
   R 15/59, New Rajnagar  
   Ghaziabad (U.P)

   200, Chawan Bazar  
   Delhi-110016.

7. M/s. Ranject Engineering Works  
   FA 310, Mansarovar Garden  
   New Delhi-110015.

8. M/s. Shree Chamunda Enterprise  
   1163/3, Patel Vas  
   Nava Asazwa  
   Ahmedabad-380016 (Gujarat).

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