**PROJECT PROFILE FOR COIR FIBER/DUST MOULDING UNIT**

**PRODUCT : MANUFACTURING OF SCULPTURES**

 **WITH COIR DUST&BIT FIBER**

**PRODUCTION CAPACITY (P.A)**

**(100% CAPACITY) : 28800 NOS**

**VALUE : RS.57.60LAKHS**

**MONTH & YEAR OF PREPARATION : JUNE 2018**

**PREPARED BY : COIR BOARD, MINISTRY OF MSME,**

 **GOVT OF INDIA**

* **INTRODUCTION**

Thermoset polyesters, those used in compression molding, are formed from linear, unsaturated, thermoplastic polyesters which are cross-linked during the cure reaction. Composite coir articles can be manufactured from polyester and coir fibre/pith. The composites so produced have high strength, water resistance, durability and transparency. For curing such unsaturated polyester resins with fibre, organic peroxides such as MEKP (methyl ethyl ketone peroxide)is used. When the peroxide is mixed with the resin, it decomposes to generate free radicals, which initiate the curing reaction. Hardeners in these systems are commonly called catalysts. The common catalyst for polyester resin is cobalt naphthenate.

The coir reinforcement used are either coir bit fibres or coir pith. The reinforcement should be dried properly before composite manufacturing. The presence of moisture in the material leads to the formation of pinholes in the products. The coir bit fibres and coir pith material is sieved in a standard IS 100 mesh sieve to remove the foreign materials present and to ensure a uniform particle size distribution and properly dried before the moulding. 20-25% coir can be incorporated as the reinforcement.

Mouldreleasing agents are used for the easy release of the product from the mould. If the releasing agents are not applied, the product will stick on to the mould. Polishing wax is found to be the most suitable release agent in the production of coir poly ester moulding.

The moulds can be of fibre glass, plaster of Paris, glass or metal moulds. Among the available mould materials, fibre glass moulds are cost effective for the production of poly ester mouldings. Hundreds of products can be produced from one mould. The finish of the product depends upon the finish of the mould. Single piece moulds are used for one side finished products. Multiple piece moulds are required for three dimensional products.The composites so produced have high strength, water resistance, durability and transparency. The production process does not require external pressure, temperature or heavy equipment. No skilled labour is required for the production. The process could advantageous to women entrepreneurs without a huge investment.

**PROCESS OF MANUFACTURE**

Steps involved in the production of coir poly ester mouldings are.

1. Apply suitable release agent to the mould.
2. Weigh the required quantity of resin in to a container
3. Mix the cross linking initiator and catalyst to the resin with continuous stirring.
4. Mix the required quantity of coir reinforcement to the resin with constant stirring
5. Pour the mixture in to the prepared mould.
6. Allow the material to set
7. Eject the product from the mould

 The cross linking reaction is an exothermic reaction. As the reaction proceeds the viscosity of the mix increases and starts setting. The product can be ejected within 15-20 min of reaction and the product is allowed to set completely. On completion of the reaction the temperature lowers to room temperature.

Pigments can be incorporated in to the resin for obtaining coloured products. The pigments should be compatible with the poly ester resin. Painting can also be done to the product for getting attractive designs and ornamentation of the product. Multiple coloured products can be produced depending on the design of the mould.

**BASIS AND PRESUMTIONS**

* The Project Profile is based on 8 working hours for1shift in a day and 300 days in a year and the Break Even efficiency has been calculated on 70%, 80%, 90%, 90% and 100% capacity utilization.
* The rate of interest both for fixed asset and working capital have been taken as 12.5% p.a.
* **TECHNICAL ASPECTS**

Installed Production capacity per year : 28800 nos of sculptures of

various images depends

upon the demand

Number of Shift per day : 1

Working days p.a : 300 days

Capacity Utilization

-First year : 70%

-Second year : 80%

-Third year : 90%

-Fourth year : 90%

-Fifth year : 100%

Rate of Average Sales Realization : Rs. 200 per sculpture Rate of Average cost of raw material : Rs.60 per sculpture

Interest on term Loan : 12.50%

Interest on working capital : 12.50%

**Manpower requirement**

Supervisor : 1

 Unskilled worker : 20

Total HP required : 5 HP

* **FINANCIAL ASPECTS**

**i) Cost of Project**

 **Amount**

* Land : Lease/owned
* Building : Rs. 300000/-
* Machinery &Equipments : Rs.1174000/-
* Working Capital : Rs.426000/-

 **------------------- Total : Rs. 1900000/-**

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|  |  |  |
| --- | --- | --- |
| **Sl.****No** | **Description of machines &equipments** | **Amount (Rs)** |
| 1 | Fiber cutting machine 1 Nos |  |
| 2 | Mould 20 Nos |  |
| 3 | Weighing balance 2 Nos |  |
| 4 | Table & other accessories |  |
| **Total** | 1900000.00 |

**ii) Means of Finance**

* Promoters Capital 5% : Rs.95000/-
* Bank Term loan 95% : Rs.1400000/-
* WC Loan from Bank 95% : Rs.405000/- -------------------

**Total : Rs.1900000/-**

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**DETAILS OF THE PROFITABILITY OF THE PROJECT**

**Rs.in Lakhs**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Years** |  | **1** | **2** | **3** | **4** | **5** |
| Installed Production capacity per year |  | 28800 | 28800 | 28800 | 28800 | 28800 |
| Number of shift/day |  | 1 | 1 | 1 | 1 | 1 |
| Working days per annum |  | 300 | 300 | 300 | 300 | 300 |
| Capacity utilization |  | 70% | 80% | 90% | 90% | 100% |
| Annual production quantity | *nos* | 20160  | 23040  | 25920  | 25920  | 28800  |
| **Annual Sales Realization** | *Rs. 200*  | 40.32  | 46.08  | 51.84  | 51.84  | 57.60  |
| Cost of Production  |
| Cost of raw material | Rs. 60  | 12.10  | 13.82  | 15.55  | 15.55  | 17.28  |
| Power cost |  | 0.26  | 0.29  | 0.33  | 0.33  | 0.37  |
| Wages & salary |  | 18.06  | 20.64  | 23.22  | 23.22  | 25.80  |
| **Cost of Production** |  | **30.41**  | **34.76**  | **39.10**  | **39.10**  | **43.45**  |
| **Gross Profit** |  | **9.91** | **11.32** | **12.74** | **12.74** | **14.15** |
| Administrative & selling expenses | 2.00% | 0.81  | 0.92  | 1.04  | 1.04  | 1.15  |
| Interest on Term Loan |  | 1.45  | 1.56  | 1.30  | 0.45  | 0.19  |
| Interest on Working capital |  | 0.51  | 0.51  | 0.51  | 0.51  | 0.51  |
| Depreciation of machinery |  | 1.17  | 1.17  | 1.17  | 1.17  | 1.17  |
| Depreciation of Building |  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  |
| **Total** |  | **4.09** | **4.31** | **4.17** | **3.32** | **3.17** |
| **Net Profit** |  | **5.82** | **7.01** | **8.57** | **9.42** | **10.98** |

**ESTIMATION OF BREAK EVEN POINT**

Rs in Lakhs

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Particulars** | **1** | **2** | **3** | **4** | **5** |
|  | 70% | 80% | 90% | 90% | 100% |
| Break-even point | 68% | 62% | 51% | 37% | 31% |
| Break even Production  | 13641  | 14239  | 13320  | 9714  | 8833  |

* **DEBT SERVICE COVERAGE RATIO**

Rs in Lakhs

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Particulars** | **1** | **2** | **3** | **4** | **5** |
| Capacity Utilization | 70% | 80% | 90% | 90% | 100% |
| DSCR | 3.40 | 2.70 | 3.29 | 4.41 | 5.49 |
| Average DSCR | 3.86 |  |  |  |  |
| DSCR weighted average | 3.70 |  |  |  |  |

* **WORKING CAPITAL REQUIREMENTS**

Rs in Lakhs

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Particulars** | **1** | **2** | **3** | **4** | **5** |
|  | 70% | 80% | 90% | 90% | 100% |
| Variable Cost | 30.41 | 34.76 | 39.10 | 39.10 | 43.45 |
| Fixed Cost | 4.09 | 4.31 | 4.17 | 3.32 | 3.17 |
| Working capital gap | 4.26 | 4.88 | 5.50 | 5.53 | 6.17 |