

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 be 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 PRESUMPTIONS

- The Project Profile is based on 8 working hours for 1 shift 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/-

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/-

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	<i>nos</i>	20160	23040	25920	25920	28800

Annual Sales Realization	<i>Rs. 200</i>	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