

COTTON YARN DYEING



1. INTRODUCTION:

Most textiles, whether in the form of garments or made ups, are used in color. Very few products are used in the natural grey shade. The process of applying color, also called dyeing, can be done at fiber, yarn, beam, fabric or garment stage depending on the desired end effect.

2. PRODUCT & ITS APPLICATION:

If the objective is to achieve uniform color all over the fabric or on the entire garment or made-up then the fabric or garment or made up article itself is dyed with a single color. Yarn dyeing is done to achieve stripes, checks or other pattern in the knit or woven fabric. Dyed yarn is extensively used in shirts, dress material, bed linen, sweaters, sports goods and home furnishing. It is also used in small quantities for making small designs, patterns, patches etc on variety of garments, cloth bags and several other articles.

3. DESIRED QUALIFICATIONS FOR PROMOTER:

Graduate in any discipline. However, a degree in Chemistry or Chemical Engineering would help.

4. INDUSTRY OUTLOOK & TRENDS:

With growing male population preferring readymade shirts over the custom stitched ones, the demand for such shirts has grown phenomenally in recent years. A large number of upper and upper middle-class youth look for checks, stripes and other patterns in these shirts. There is also a good export market for readymade shirts all over the world and India is an important player in this product.

5. MARKET POTENTIAL AND MARKETING ISSUES, IF ANY:

Traditional composite mills had in-house dyeing facilities. However, textile manufacturers have now been focusing on their core competence of spinning, weaving, knitting or processing as stand-alone operations. Industrial buyers use large quantities of cotton yarn for varied applications. Many of them need yarn in light, medium and dark shades for knitting or weaving different products. Use of dyed yarn of different colours not only helps them come up with creative designs or patterns, it also eliminates the need for one more process of fabric or garment printing. Therefore, many knitting or weaving mills buy dyed yarn or get their yarn dyed on job work basis.

6. RAW MATERIAL REQUIREMENTS:

The main raw material is dye. Cotton being a cellulosic fiber requires Direct, Reactive, Vat, Sulfur or Azoic dyes. Color, fastness, uniform appearance and cost are the key parameters for selection of dyes. Vat dyes are expensive but offer good wash and light fastness while reactive dyes are increasingly used because of cost advantage. Since dyeing process uses large quantity of water, some water softening chemicals

are also required. Dyes of different colors and qualities are available in all industrial cities.

7. MANUFACTURING PROCESS:

Cotton yarn is packed by the spinning mills in hank or cone form. Hank yarn can be dyed in the hank form itself by placing it in dye bath. Yarn on the cones needs to be rewound into soft cones to ensure dye penetration in the inner layers of the yarn. Original grey yarn is therefore wound on collapsible spring tubes in cheese winder to prepare soft packages. These tubes are kept on the pegs of dye chamber wherein dye reaches inner layers of the yarn. Dyeing cycle requires yarn to be kept in dye for certain period of time at a certain temperature depending on type of dye used and shade required. After dyeing, the excess water is removed and hank / soft cones dried completely. Yarn on collapsible cones is rewound on paper cones in a winding machine and packed in bags or cartons.

8. MANPOWER REQUIREMENT:

The enterprise requires 31 employees as detailed below:

Sr. No.	Designation of Employees	Monthly Salary ₹	Number of employees required	Annual cost ₹ in lacs
	Variable Labour / Workers:			
1	Skilled workers	12,000	7	10.08
2	Helpers	8,000	11	10.08
	<i>sub-total</i>		18	20.16
	Fixed Staff Costs:			
1	Dye House Manager	40,000	1	4.80
2	Commercial Executive	20,000	1	2.40
3	Marketing Executive	20,000	1	2.40
4	Lab / ETP Technician	15,000	2	3.60
5	Stores / warehouse Assistant	15,000	2	3.60

6	Accounts Executive	20,000	2	4.80
7	Production Supervisor	20,000	1	2.40
8	Security / Peon / Driver	10,000	3	3.60
	<i>sub-total</i>		13	27.60
	Total		31	47.76

9. IMPLEMENTATION SCHEDULE:

The project can be implemented in 3 months time as detailed below:

Sr. No.	Activity	Time Required (<i>in months</i>)
1	Acquisition of premises	1
2	Construction (if applicable)	-
3	Procurement & installation of Plant & Machinery	3
4	Arrangement of Finance	2
5	Recruitment of required manpower	2
	Total time required (<i>some activities shall run concurrently</i>)	3

10. COST OF PROJECT:

The project shall cost ₹ 152.14 lacs as detailed below:

Sr. No.	Particulars	₹ in Lacs
1	Land	-
2	Building	-
3	Plant & Machinery	111.50
4	Furniture, Electrical Installations	12.50
5	Other Assets including Preliminary / Pre-operative expenses	11.25
6	Margin for Working Capital	16.89
	Total	152.14

11. MEANS OF FINANCE:

Bank term loans are assumed @ 60% of fixed assets. The proposed funding pattern is as under:

Sr. No.	Particulars	₹ in Lacs
1	Promoter's contribution	70.99
2	Bank Finance	81.15
	Total	152.14

12. WORKING CAPITAL CALCULATION:

The project requires working capital of ₹ 27.69lacs as detailed below:

Sr. No.	Particulars	Gross Amt	Margin %	Margin Amt	Bank Finance
1	Inventories	61.88	40%	24.75	37.13
2	Receivables	18.00	40%	7.20	10.80
3	Overheads	9.69	100%	9.69	-
4	Creditors	-61.88	40%	-24.75	-37.13
	Total	27.69		16.89	10.80

13. LIST OF MACHINERY REQUIRED:

The key machinery is the dyeing machines for hank and cones. In addition, the project shall need a boiler, water softening facility, material handling equipment, a laboratory etc. details of important machinery is given below:

Sr. No.	Particulars	UOM	Qty	Rate (₹)	Value (₹ in Lacs)
	Plan & Machinery / equipments				
a)	Main Machinery				
i.	Dye Bath for Hank Yarn	Nos	2.00	5,00,000	10.00
ii.	Pressure Dye Machine for cones	Nos	1.00	40,00,000	40.00
iii.	Boiler	Nos	1.00	10,00,000	10.00
iv.	Cheese winders (30 spindles)	Nos	1.00	5,00,000	5.00
v	Rewinder (Indigenous) (30 sp)	Nos	1.00	20,00,000	20.00
vi.	Water Softening Plant	Nos	1.00	5,00,000	5.00
b)	Ancilliary machinery				
i.	Hoist	Nos	1.00	1,00,000	1.00

ii.	Trolleys	LS	1.00	2,00,000	2.00
iii.	Washing machine	Nos	3.00	1,00,000	3.00
iv.	Material handling equipments	LS	1.00	3,00,000	3.00
v.	Laboratory Equipments	LS	1.00	5,00,000	5.00
vi.	Pollution control Equipment	LS	1.00	7,50,000	7.50
	<i>sub-total Plant & Machinery</i>				111.50
	Furniture / Electrical installations				
a)	Office furniture	LS	1.00	1,00,000	1.00
b)	Storage system	LS	1.00	2,00,000	2.00
c)	Electrical installations	LS	1.00	5,00,000	5.00
d)	Computers	Nos	3.00	1,50,000	4.50
	<i>sub total</i>				12.50
	Other Assets				
a)	Rent Deposits		2.00	1,87,500	3.75
b)	Delivery Van	Nos	1.00	7,50,000	7.50
	<i>sub-total Other Assets</i>				11.25
	Total				135.25

Machinery for textile processing is available from following suppliers. They have offices across several cities in India. There may also be other local machinery manufacturers offering alternate machines of various makes and models.

- IIGM Private Limited
Springdale No. 51,
Residency Road, 3rd cross,
Bangalore 560025
www.iigm.in
- Stefab India Ltd
39/14, Netaji Subhash Vihar
Tikri Kalan, Rohtak Road
New Delhi 110041
www.stefab.com

- Welco Garment Machinery Pvt Ltd
T-19/6, DLF Phase III,
Gurgaon, Haryana
www.welcogm.com
- Ramsons India
118/2 Doddakannelli Village, VarthurHobli
Sarjaupur Road, Opp.: Karnataka Granite Showroom
Bangalore 560 037
www.ramsonsindia.com

14. PROFITABILITY CALCULATIONS:

Sr. No.	Particulars	UOM	Year-1	Year-2	Year-3	Year-4	Year-5
1	Capacity	%	60%	70%	80%	90%	100%
2	Sales	₹ in Lacs	542.70	633.15	723.60	814.05	904.50
3	Raw Materials & Other direct inputs	₹ in Lacs	491.53	573.45	655.37	737.29	819.21
4	Gross Margin	₹ in Lacs	51.17	59.70	68.23	76.76	85.29
5	Overheads except interest	₹ in Lacs	58.13	58.13	58.13	58.13	58.13
6	Interest	₹ in Lacs	10.33	10.33	10.33	10.33	10.33
7	Depreciation	₹ in Lacs	9.92	9.92	9.92	9.92	9.92
8	Net Profit before tax	₹ in Lacs	-27.21	-18.68	-10.15	-1.63	6.90

The above calculations are based on assumed dyeing charges varying from ₹ 95 to ₹ 105 per kg for various products. The cost of important dyes & chemicals is assumed at ₹ 2500 per kg. Electricity tariff is assumed at ₹ 8 per Kwh.

15. BREAKEVEN ANALYSIS:

The project shall reach cash break-even at 79.83% of projected capacity as detailed below:

Sr. No.	Particulars	UOM	Value
1	Sales Realization	₹. In Lacs	904.50
2	Variable costs	₹. In Lacs	818.73
3	Fixed costs incl. interest	₹. In Lacs	68.46
4	$BEP = FC/SR-VC \times 100 =$	% of sales	79.83%

16. STATUTORY / GOVERNMENT APPROVALS:

The project may require Consent from State Pollution Control Board depending on type and quantity of effluent generated. Registration with MSME is optional. An Entrepreneur may also be required to obtain Shops & Establishment Registration and Professional Tax registration by local Municipal authorities. Registration under Factories Act, Provident Fund Act and ESI provisions would be required depending upon the number of employees, the location, the level of mechanization and the age of the enterprise.

17. BACKWARD OR FORWARD INTEGRATION:

While cone dyeing machine can't be used for other purposes, a part of processing plant can be used for dyeing small batches of fabric or garments. The Entrepreneur can explore the market for these products in order to generate additional revenues out of yarn dyeing plant.

18. TRAINING CENTERS/COURSES

Udyamimitra portal (link : www.udyamimitra.in) can also be accessed for handholding services viz. application filling / project report preparation, EDP, financial Training, Skill Development, mentoring etc.'

Entrepreneurship program helps to run business successfully is also available from Institutes like Entrepreneurship Development Institute of India (EDII) and its affiliates all over India.

Disclaimer:

Only few machine manufacturers are mentioned in the profile, although many machine manufacturers are available in the market. The addresses given for machinery manufacturers have been taken from reliable sources, to the best of knowledge and contacts. However, no responsibility is admitted, in case any inadvertent error or incorrectness is noticed therein. Further the same have been given by way of information only and do not carry any recommendation.