

CEMENT PAINTS

1. INTRODUCTION:

Water Repellent Cement is a Paint based on Portland cement with the addition of pigments, fillers, accelerators and water repellent substances. These paints which have largely superseded the simple Cement washes are supplied as a dry powder and mixed with water before use, but for darker colors ordinary cement could be substituted as base. For external faced decoration lighter color paints are in general preferred, because the color is matchless conspicuously affected by the formation of sporadic 'Fade' films of calcium carbonate over the surface. Cement paints are used externally to prevent rain penetration, as well as for decorative purposes, and can retain some water roofing qualities for as long as ten years on vertical surfaces. For making different colors cement paints a certain percentage of pigments are used in the base cement paint. The pigments must be lime free and the hydrated lime should not exceed 8% of anhydrate CaO and MgO.

2. PRODUCT & ITS APPLICATION:

A wide range of colors and shades in cement paints have been developed and manufactured to meet various choices, moods, service conditions, and methods of application, performance and economic requirements. Cement paints are widely used by general public and Government Departments, and establishments. Cement paints give following excellent properties to any masonry surface: 1) Cement paint gives very good protection to all kinds of masonry surfaces from Ultraviolet rays present in sun rays. 2) It gives very good protection from severe climatic conditions like rain, heat, water, humidity, salt atmosphere near sea-shores, to all types of cemented walls, surfaces. 3) It prevents growth of fungus and bacteria on masonry surfaces. 4) It gives very good color and pleasing appearance to all types of masonry surfaces. 5) Cements paint hides out various surface irregularities, hair lining, and roughness etc. thereby giving smooth and pleasing appearance to all cemented masonry

surfaces where it is applied. Cement paints normally give smooth and matt finish. The machines and equipments for the manufacture of cement paints are indigenously available and are not very expensive also. The process and technology being simple, this item is suitable for development in rural and backward areas. Cement paint produces a smooth, matt finish, is strongly water repellent and weather proof. It is hygienic and an excellent light reflector requires minimum curing with water, without peelings, flaking or rubbing off.

3. DESIRED QUALIFICATIONS FOR PROMOTER:

Graduate in any discipline.

4. INDUSTRY LOOK OUT AND TRENDS

Cement industry is one of the most important basic industries on which depends the economic health of a developing country. In fact one of the important indicators of the industrial vitality of a country is its per capita consumption of cement. For Japan it is 670 Kgs. for Germany 544 Kgs, for the US 341 Kgs. and for Singapore 540 kgs. Unfortunately for India it is low at 32 kgs. India is the eleventh largest producer of cement in the world, with an installed capacity of 26.5 million tons and an investment of Rs. 280 crores in 55 units spread all over the country providing employment to over 80,000 persons.

According to official projections on demand for and supply of cement during the sixth plan period, the total demand for the product has its increase to 38 million tons by the end of 1984-85 from 28 million tons in 1980-81. A decisive role has been assigned to mini cement plants in the efforts to equipment the installed capacity and strive for higher production the working of mini cement plant based on vertical shaft Koln is technologically feasible. In fact such plant is already in operation throughout the world.

The policy decisions relating to new units in the industry were taken by

Government in 1975, first that the minimum capacity should be 4 lakhs tones per annum and secondly that they should use the more economical dry process. These requirements were considered to be well within the capabilities of Indian fabricators. By and large this is the policy likely to be followed in future. During the year Government announced a scheme of soft loans (at 7 1/2%) to current units wish to convert from wet to dry, in the belief that modernization including such conversion would enhance production in 9 units by as much as 1 million tons.

However the advent of the Mini-Cement Plant with vertical shaft kiln, which was introduced in India by an enthusiastic protagonist from Australia, has provided a diversion. In some quarters the Mini Cement plant has a keen following, since it opens up possibilities of exploiting small deposits of limestone in difficult terrain and there by contributes to the "Socialist pattern" on the other hand. There is still some doubt as to the quality of clinker produced in these plants. The six units so far a setup has yet to establish their commercial. Nevertheless the Cement Research Institute of India which possesses the known-how for manufacturing these plants, is hopeful of setting up some 200 such plants around the country.

A development Council embracing representative of all parties concerned with the industry including consumers has been set up. The council is intended to function as a watching, overseeing all aspects of the industry, fixing production targets, monitoring progress, optimizing the use of raw materials and attending to such matters as standardization, export promotion, developing the use of industrial wastes in cement manufacturer and production of special cements.

With the combination of all these developments the industry may, with luck play its full role in the national program.

5. MARKET POTENTIAL AND MARKETING ISSUES, IF ANY:

It has been observed in almost all the masonry constructions water penetrates into and seeps through quite readily-when it does, the beauty and durability of the masonry constructions is affected. The absorbed water dissolves water soluble salts within the masonry and while drying up it creates an unsightly sporadic fade film of calcium carbonate. When water passes entirely through the masonry it will be dumped on the interior walls, crack the plaster, peel off the paint and wall coverings. In cold areas the water freezes within masonry and expands, causing cracking and spoiling, which makes the appearance of the surface scarred and chipped. To overcome this problem one has to bear a constant recurring expenditure on the maintenance of building. The proposed water repellent cement paint has a property to prevent rain water penetration as well as can retain water proofing qualities as long as ten years, thus enabling the users to maintain the evergreen look of the building for years together without recurring investment. Moreover keeping pace with the present economic reform people of India is thinking real estate investment is a better investment and opting for construction of house, this cement paint has many connotation values and in spite of tough economy, people will search for this product because of its multi directional benefits of costs.

6. RAW MATERIAL REQUIREMENTS:

The major raw materials require for the cement paints are White Cement, Hydrated Lime, Water repellent, hygroscopic salt, and Zinc sulphate, Calcium Carbonate, Silica aggregate and different Pigments. All the required materials are easily available in the local market.

7. MANUFACTURING PROCESS:

Portland Cement Powder, Hydrated lime water repellents, Hygroscopic Salt, Titanium dioxide, calcium carbonate, siliceous fillers are suitably proportioned in a hopper. The whole material is fed from the top into ball mill and allowed to grind the material for 12 hrs. Dry grinding. The unloaded material through belt conveyor is collected in different silos. For getting different colors - pigments are added in

suitable proportions along with the batch. The finished product (Cement Paints) is packed in HDPE Polythene lined packet of 5, 10, 20 & 50 Kgs. Capacity and stored in a well-ventilated dry humidity controlled room.

8. MANPOWER REQUIREMENT:

The enterprise requires 16 employees as detailed below:

Sr. No.	Designation of Employees	Monthly Salary ₹	Number of employees required				
			Year-1	Year-2	Year-3	Year-4	Year-5
1	Machine Operators @ 12000	24,000	2	2	2	2	2
2	Helpers @ 8000	56,000	7	7	10	10	10
1	General Manager@15000	15,000	1	1	1	1	1
2	Accounts/Stores Asst@12500	25,000	2	2	2	2	2
3	Office Boy/Peon@9000	9,000	1	1	1	1	1
	Total	1,29,000	13	13	16	16	16

9. IMPLEMENTATION SCHEDULE:

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

Sr. No.	Activity	Time Required (in months)
1	Acquisition of premises	1.00
2	Construction (if applicable)	2.00
3	Procurement & installation of Plant & Machinery	2.00
4	Arrangement of Finance	2.00
5	Recruitment of required manpower	1.00
	Total time required (some activities shall run concurrently)	4.00

10. COST OF PROJECT:

The project shall cost ₹ 72.70 lacs as detailed below:

Sr. No.	Particulars	₹ in Lacs
1	Land @ 2500 sq. mtrs @ Rs. 400	10.00
2	Building @ 1000 Sq. Mtrs @ Rs. 1000	10.00
3	Plant & Machinery	12.70
4	Furniture, Electrical Installations	4.00
5	Other Assets including Preliminary / Pre-operative expenses	1.00
6	Margin for Working Capital	35.00
	Total	72.70

11. MEANS OF FINANCE:

Bank term loans are assumed @ 75 % of fixed assets. The proposed funding pattern is as under:

Sr. No.	Particulars	₹ in Lacs
1	Promoter's contribution	20.00
2	Bank Finance	52.70
	Total	72.70

12. WORKING CAPITAL CALCULATION:

The project requires working capital of ₹ 35.0 lacs as detailed below:

Sr. No.	Particulars	Gross Amt	Margin %	Margin Amt	Bank Finance
1	Inventories	15.00	25	3.75	11.25
2	Receivables	18.00	25	4.50	13.50
3	Overheads	2.00	100	2.00	-
4	Creditors	-		-	-
	Total	35.00		10.25	24.75

13. LIST OF MACHINERY REQUIRED:

A detail of important machinery is given below: Power Requirement: 52 HP

Sr. No.	Particulars	UO M	Qty	Rate (₹)	Value (₹ in Lacs)
	Plant & Machinery / equipments				
a)	Main Machinery				
i.	Ball Mill 4'x4', 7.5HP	Nos	6	75000	4.50
ii.	Ball Mill 600mm x 600mm,3HP	Nos	2	60000	1.20
iii.	Belt conveyor 60' length 100mm wide 1HP		1		0.70
	Silos OF 100 Kgs. Each made out of 3 mm sheet		1		0.30
b)	Ancillary machinery				
i.	Totally enclosed belt bucket elevator of 20' height with 1 HP motor	Nos	1.00		2.00
ii.	Weighing balance capacity 500 Kgs. Spring Balance 500 Kg Bag sewing machine	LS	2.00		4.00
	<i>sub-total Plant & Machinery</i>				12.70
	Furniture / Electrical installations				
a)	Office furniture	LS	1.00		1.00
b)	Stores /cupboard	LS	1.00		1.00
c)	Computer & Printer	Nos	2.00	1,00,000	2.00
	<i>sub total</i>				4.00
	Other Assets				
a)	Rent Deposits		2.00	50,000	1.00
	<i>sub-total Other Assets</i>				1.00
	Total				17.70

All the machines and equipment are available from local manufacturers. The entrepreneur needs to ensure proper selection of product mix and proper type of machines and tooling to have modern and flexible designs. It may be worthwhile to look at reconditioned imported machines, dies and tooling. Some of the machinery and dies and tooling suppliers are listed here below:

- Kamdhenu Agro Machinery
Plot No. 6, Near Power House,
Wathoda Road, Wathoda
Nagpur - 440035
Maharashtra, India

- Future Industries Private Limited
Shed No. 15, Ambica Estate,
Corporation Municipal Plot,
Opposite Sadvichar Hospital,
Naroda, Ahmedabad - 382330,
Gujarat, India

- The Global Pharma Equipments
Star Industrial Estate,
D-32, Naik Pada,
Near Hanuman Mandir,
Opposite Dwarka Industrial Estate,
Vasai East, Vasai - 401208,
Maharashtra, India

14. PROFITABILITY CALCULATIONS:

Sr. No.	Particulars	UOM	Year-1	Year-2	Year-3	Year-4	Year-5
1	Capacity Utilization	%	60%	70%	80%	80%	80%
2	Sales	₹. In Lacs	120.00	140.00	160.00	160.00	160.00
3	Raw Materials & Other direct inputs	₹. In Lacs	100.00	116.67	133.34	133.34	133.34
4	Gross Margin	₹. In Lacs	20.00	23.33	26.66	26.66	26.66
5	Overheads except interest	₹. In Lacs	17.20	17.20	18.80	18.80	18.80

6	Interest @ 10 % on 52.70	₹. In Lacs	5.27	5.27	4.50	3.90	2.70
7	Depreciation @ 30 % wdv	₹. In Lacs	4.50	3.80	2.90	2.35	1.90
8	Net Profit before tax	₹. In Lacs	-6.97	-2.94	1.61	1.61	3.26

The basis of profitability calculation:

The growth of selling capacity will be increased 10% per year. (This is assumed by various analysis and study, it can be increased according to the selling strategy.)

Energy Costs are considered at Rs 7 per Kwh and fuel cost is considered at Rs. 65 per litre. The depreciation of plant is taken at 10-12 % and Interest costs are taken at 14 -15 % depending on type of industry.

15. BREAKEVEN ANALYSIS:

The project shall reach cash break-even at 67.39 % of projected capacity as detailed below:

Sr. No.	Particulars	UOM	Value
1	Sales at full capacity	₹. In Lacs	200.00
2	Variable costs	₹. In Lacs	166.66
3	Fixed costs incl. interest	₹. In Lacs	22.47
4	BEP = $FC/(SR-VC) \times 100 =$	% of capacity	67.39

16. STATUTORY / GOVERNMENT APPROVALS

As per the allocation of business rules under the Constitution, labour is in the concurrent list of subjects. It is dealt with by the MOLE at the Central and Departments of Labour under State Governments in respective States / UTs. The MOLE has enacted workplace safety and health statutes concerning workers in the manufacturing sector, mines, ports and docks and in construction sectors.

Further, other Ministries of the Government of India have also enacted certain statutes relating to safety aspects of substances, equipment, operations etc. Some of the statutes applicable in the manufacturing sector are discussed below:

The Static and Mobile Pressure Vessels (Unfired) Rules, 1981

These (SMPV) Rules are notified under the Explosives Act, 1884. These rules regulate storage, handling and transport of compressed gases. These rules stipulate requirements regarding construction and fitments, periodic testing, location, fire protection, loading and unloading facilities, transfer operations etc. in respect of pressure vessels whose water capacity exceeds one thousand litres. These rules are enforced by the Chief Controller of Explosives under the Ministry of Industry and Commerce, Govt. of India (PESO).

The Manufacture, Storage and Import of Hazardous Chemicals Rules (MSIHC), 1989

These MSIHC Rules are notified under the Environment (Protection) Act, 1986. These rules are aimed at regulating and handling of certain specified hazardous chemicals. The rules stipulate requirements regarding notification of site, identification of major hazards, taking necessary steps to control major accident, notification of major accident, preparation of safety report and on-site emergency plan; prevention and control of major accident, dissemination of information etc. These rules are notified by the Ministry of Environment and Forests (MOEF) but enforced by the Inspectorates of Factories of respective States / UTs in the manufacturing sector.

The Factories Act, 1948 and State Factories Rules

The Factories Act, 1948 is very comprehensive legislation dealing with the matters of safety, health and welfare of workers in factories. The Act places

duties on the occupier to ensure safety, health and welfare of workers at work.

Some of the salient provisions of the Act include:

- Guarding of machinery
- Hoists and Lifts; Lifting Machines and Appliances
- Revolving Machinery
- Pressure Plant
- Excessive Weight
- Protection of Eyes
- Precautions against dangerous fumes, gases etc.
- Explosive or inflammable dust, gas etc.
- Precautions in case of fire
- Safety of buildings and machinery
- Permissible limits of exposure of chemical and toxic substances
- Entrepreneur may contact State Pollution Control Board where ever it is applicable.

17. BACKWARD AND FORWARD INTEGRATIONS

Chemical companies often become integrated and undergo other activities outside the chemical industry. Increased competition prompts many companies to reduce supply chain costs by looking outside the chemical sector at suppliers and customers. While most companies within the chemicals sector primarily produce chemicals, some companies also conduct other manufacturing activities. The exact proportion of chemicals sector companies that are integrated with other sector activities is unknown, but many companies actively seek vertical integration. Many manufacturers pursue vertical integration to secure suppliers and customers for their products.

Mergers and acquisitions are a common way for companies to undertake new chemical ventures. By purchasing their chemical suppliers, some manufacturers

secure future chemical feedstock for their products or other chemicals that they use in manufacturing. The company making the purchase obtains valuable expertise and equipment. Some mining and petrochemical production is more cost-effective when integrated within a chemical company.

Energy and feedstock costs are often a significant expense for chemical companies. Integrating chemical production with activities that secure supplies of chemical feedstock and energy is relatively common as chemical companies grow. Chemical companies are located near mines, oil fields, ammonia factories and water supplies. This reduces transportation costs and increases the reliability of supplies by reducing the distance between feedstock and the factory.

Some companies, such as Sino-Coking Coal and Coke Chemical Industries Incorporated, own their mines. BHP Billiton operates a broad range of mines and is primarily a mining company. It does, however, also produce petrochemical feedstock for the chemical industry and therefore operates within the chemical industry as well. These companies technically operate within both the chemical and mining industries in their normal business operations.

Integrating a chemical company with other activities provides several direct benefits for the company and is becoming increasingly common. High energy costs necessitate greater control of energy resources and minimal reliance on expensive transportation. Chemical companies experience volatile profitability due to fluctuations in feedstock and energy expenses. Some companies control this volatility through careful supply chain management and by charging supply surcharges. Actively researching and developing alternative feedstock and energy supplies helps the company reduce costs.

Vertical integration supports these activities by eliminating redundant activities

at multiple companies and increasing efficiency. By consolidating activity among multiple, similar operations, chemical companies achieve cost savings that contribute to higher profitability. End products are often very profitable, and some chemical companies purchase their former customers to take advantage of the marked-up prices of products further along in the supply chain.

Integration may become more common for many chemical companies as competition strengthens and traditional feedstock becomes more expensive. Market demand for chemical feedstock increases as emerging market economies grow and result in increased consumer spending around the world.

18. TRAINING CENTERS AND COURSES

There is no such training required to start this business but, basic chemical bachelor's degree is plus point for enterpriser. Promoter may train their employees in such specialized institutions to grow up the business. There are few specialised Institutes provide degree certification in chemical Technology, few most famous and authenticate Institutions are as follows:

1. Department of chemical LD college of engineering
No.120, Circular Road, University Area, Navrangpura,
Opposite Gujarat University, Ahmedabad, Gujarat 380015
2. MIT College of chemical Engineering, **Pune**
Gate.No.140, Raj Baugh Educational Complex,
Pune Solapur Highway,
Loni Kalbhor, Pune - 412201
Maharashtra, India

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.

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.

Source:- Udyami Mitra/Sidbi