

ANTICORROSIVE PAINTS

Every year corrosion eats away wealth in billions. Neglected, corrosion can have disastrous consequences. Corrosion is death, there is no cure. Prevention is the only solution

Corrosion occurs wherever a surface (metal, concrete) is exposed. Corrosion is primarily electrochemical in nature, with a chemical reaction accompanied by the passage of an electrical current.

There are two methods used for corrosion control

1. Modifying the corrosive environment

- Inhibitors
- Cathodic Protection

2. Excluding the corrosive environment

- Coatings (painting)

Modifying the environment is specific to some systems. Common approach to corrosion prevention is by protective coatings. Anticorrosive coatings have become an important part of paints and coatings industry in the industrialized countries

As a result of significant growth in key end-user industries, such as shipping, oil & gas, power, the market for anti-corrosion coatings in India is developing at a fast pace and has significant potential for future development. The demand for heavy-duty coatings is particularly good. This market provides strong opportunities for new entrants.

Proposal:

Considering the excellent growth prospects, Apitco recommends setting up of an anticorrosive paints manufacturing unit to new entrepreneurs.

Product mix

Resin Manufacture	600 Tons / Yr
Pigments	300 Tons / Yr
Paint formulations	3000 Tons / Yr

Market

Indian paint industry is estimated at Rs 6000 crores. The share of Industrial paints is about 35 %. The automobile sector accounts for 50 % of Industrial paints market. The value of anticorrosive paints market may be around Rs. 200 crores. The main attraction is that this segment is expected to grow at 10 % per year.

Main consumers of anticorrosive paints are,

Shipping Industry
Railways
Military
Chemical and petrochemical industry
Oil and natural gas Industry
Steel Plants
Power plants

Large investments are on the anvil in all these sectors and it is a good time to enter and capture a market share.

To carve out a niche in the market of anticorrosive paints segment, the company has to become a service provider instead of being just a material supplier. This involves developing a knowledge base on all aspects of corrosion engineering and a core team that can work with clients providing solutions and application support.

Manufacturing process

Paints are mixtures of many raw materials. The three major components are:

- Binder (other terms used include: vehicle, resin, film former or polymer)
- Pigment or Extender.
- Solvent.

The first two form the final dry paint film. Both act as protectors from corrosion. Solvent is only necessary to facilitate application and initial film formation. It leaves the film by evaporation and can therefore be considered an expensive waste product.

Different resins like alkyds, epoxy, and polyester are used in paint manufacture. Some of the resins can be manufactured in house based on economic considerations. Resin manufacture involves chemical reactions like condensation and polymerization.

Pigments like Iron oxide, Zinc chromate and aluminum powder are used in anticorrosive paints. Some of the specialty pigments can be produced in-house. Pigment manufacture involves steps like mixing, dissolving in suitable solvent, filtration, drying and powdering.

Paint formulation consists of the following Steps:

1. Mixing the pigment with sufficient vehicle (Resin Solution) to make paste which has the correct consistency for grinding.
2. Grinding the paste in a mill until the aggregates are broken down as indicated by the 'fineness of grind' test
3. Addition of performance enhancers and preservatives.
4. Tinting the batch to the required colour.
5. Testing to determine physical properties and performance requirement.
6. Straining, filling and packing.

Technology

Technology for manufacture of different type of resins, pigments and formulation of anticorrosive paints is available from a number of sources including CSIR laboratories.

Plant and Machinery

Manufacture of resins and pigments involves process equipment like reactors, heat exchangers, filters and dryers

Paint manufacture involves equipment like ball mill, Planetary mixer, Triple roll mill, Paint storage tanks, Solvent storage Tanks and mixing vessels. All the machinery is indigenous.

Raw material

The main raw materials are resins (chemicals for manufacturing the resins), pigments and solvents. The raw materials are available from multiple sources.

Utilities:

Project cost: Investment required for setting up a project with the suggested product mix will be about Rs. 5 crores. If the resin manufacturing plant is deferred, investment will come down by Rs. 2 crores.

Turnover and profitability: turnover of Rs. 20 to 25 crores is possible. The net profit margins are about 6 to 8 % of turnover.

Suggested location:

Kakinada or Vizag

Entrepreneur profile:

This is a working capital intensive project. Strong financial resources are essential. Technical background will be a plus point.

Apitco's consultancy

1. Technology tie-up
2. Market survey
3. Product mix selection
4. Finding low cost financing options