

MULTI PRODUCT SULFONATION PLANT

Sulfonation and sulfation processes are widely used in chemical industry to make products such as water-soluble detergents, emulsifiers and demulsifiers, penetrating and solubilizing agents, lubricating oil additives and rust inhibitors. These materials are used in household and commercial detergent applications, food processing, dyes, cosmetics manufacturing, and metal treating compounds and lubricating oils. More recently, oil-soluble sulfonates have found application in enhanced oil recovery systems. Then there are specialty products like Poly naphthalene sulfonate that goes into super plasticizers used as concrete admixture.

The large product range and wide spectrum of end uses made sulfonation process a special segment of chemical industry.

Proposal:

The possibility of manufacturing a large number of products having high growth potential in a common set up offers good scope for growth. A multi product sulfonation unit with captive sulfur trioxide plant is a profitable proposition.

Product mix:

Methyl ester of fatty acid sulfonates	3000 T / yr
Linear alkyl benzene (LAB) sulfonates	3000 T / yr
Poly Naphthalene sulfonate	1500 T / yr
Other sulfonation products	1500 T / yr

Market:

The First two products chosen go into detergents.

1. LAB sulfonate known as Acid slurry is already in the market and used extensively by small-scale detergent manufacturers.

Indian detergent market is valued at Rs. 6000 crores. Hindustan lever, P & G, Henkel Spic, and Nirma dominate the market. The organized sector accounts for market share of 70 % in volume terms and 80 % in value terms. These organized companies make their own ingredients.

The small-scale detergent/ washing soap producers have a market of Rs. 1000 to 1200 crores. They buy the ingredients and make the powders / cakes. Acid slurry market for this segment is 50,000 tons.

2. Sulfonates of methyl ester of fatty acids (MEFA) are a substitute for LAB sulfonates. Methyl ester of fatty acid production in India is going to get a major spurt for the bio Diesel industry. We expect this to be available at lower price than LAB, a petroleum derived product. Marketing sulfonates of MEFA to small scale on price basis would be easy.

3. Poly Naphthalene sulfonate formaldehyde condensate is widely used as a super plasticizer in concrete production. With more and more ready mix plants being set up demand for this product is going to increase.

4. A number of sulfonation products are used as emulsifiers in pesticide formulations, as lube oil additives and in oil drilling. These can be manufactured on contract basis for the end user Industries.

Manufacturing process:

Sulfonation reactions are carried out using, concentrated Sulfuric acid, Oleum or Sulfur tri oxide as the sulfonating agent. Continuous or batch processing is employed based on volumes and raw material.

We are recommending one continuous sulfonation line and one batch processing line with captive Sulfur trioxide generating unit.

Technology:

Consultants / plant and machinery suppliers who can offer turnkey sulfonation units for batch and continuous plants are available.

Plant and Machinery:

Sulfur trioxide plant consists of sulfur burner and converter for sulfur dioxide to trioxide. There are a number of options for continuous sulfonation like tubular film sulfonator, continuous stirred tank reactors. Batch processing is carried out in stirred tank reactors. Other equipment needed are absorbers for tail gases, storage tanks. The plant and machinery is indigenously available.

Raw materials:

LAB. MEFA, Methyl Naphthalene and Sulfur are the main raw materials required.

Utilities:

Power, water are the main utilities required.

Project cost:

This project is estimated to cost Rs. 8 crores

Turnover and profitability:

Annual turnover of Rs. 40 crores can be expected at full capacity utilization. The net profit margin will be about 5 %.

Suggested location:

Kakinada, Vizag belt.

Entrepreneur profile:

This project is suited for entrepreneurs who have some exposure to soap / detergent market. Companies in solvent extraction/ fatty acid manufacture can also consider this project

Apitco's consultancy:

1. Market survey
2. Technology tie-up