SILICATE CHEMICALS AND ZEOLITES

Sodium silicate and other silicates derived from sodium silicate have wide ranging applications. Main products are Precipitated silica, Silica gel, Calcium silicate, Potassium silicate, Aluminium silicate and sodium aluminium silicates (zeolites)

Proposal

Manufacture of sodium silicate and related products like precipitated silica are reserved for small scale. This has stunted the growth of down stream products. Some of the down stream products like aluminium silicate (partial replacement of Titanium dioxide) and sodium aluminium silicates (zeolites for detergents) have a large market. The proposal is to set up a large plant for sodium silicate and downstream products as export-oriented unit. Part of the production can be exported and part of the production sold in domestic market. Large size will result in economies of scale, introduction of improved technologies and manufacture of quality products meeting international standards.

Market

With price of rock phosphate going up, phosphate based detergency builders like sodium tripolyphosphate and trisodium phosphate have become expensive. Zeolites are the accepted substitutes. The potential market is estimated over 100000 tons valued at Rs 300 crores. Precipitated silicas have a large market as fillers in rubber industry (tyres).

Aluminium silicate as replacement of titanium dioxide has a large market in paints.

Product mix

Sodium silicates Captive)	30000 TPA
Precipitated Silicas	6000 TPA
Zeolies	15000 TPA
Sodium Aluminium silicate	3000 TPA
(pigment grade)	
Other silicates	6000 TPA

Manufacturing process

Sodium silicates are made from soda ash and high quality silica sand/ quartz. The alternate process is based on caustic soda and silica sand. Rice husk ash is also used as source of silica.

Reacting the sodium silicate and sulfuric acid and precipitating the silicon dioxide under controlled conditions make precipitated silicas. Sodium sulfate is obtained as a by-product. Alternatively carbon dioxide is used to precipitate the silica. Here the sodium carbonate can be recovered and recycled.

Zeolites are made by reacting sodium silicate with aluminium hydroxide.

Technology

Well-proven technologies for all the products are available.

Plant and Machinery

The main plant and machinery consists of glass furnace, filters, dryers and pulverizes.

Raw materials**:** Main raw materials are soda ash, silica sand, sulfuric acid aluminium hydroxide etc. All the raw materials are available.

Utilities**:** This is an energy intensive industry. Furnace oil /coal are the main fuels. Power requirements are moderate.

Project cost

Capital outlay can be 20 to 25 crores

Turnover and profitability

Turn over of Rs 60 crores with 6 to 8 % net profit margins can be expected

Suggested location

Near Hyderabad where good quality silica is available or khammam distict (coal availability)

Strategy/ options

There are no constraints on technology or raw material front. Market survey with zeolites and precipitated silica as main products has to be carried out. This can be planned as export oriented unit with duty free import of soda ash

Consultancy from APITCO : Sourcing technology. Selection of plant and machinery. Market study. Detailed project report preparation.