

## **AKD/ASA--PAPER SIZING CHEMICALS**

Alkyl Ketene Dimmer (AKD) also called AKD wax and Alkenyl Succinic Anhydride (ASA) are wax like chemicals. Both AKD and ASA are used as sizing chemicals for paper. Traditionally Rosin (Acidic sizing) was used as paper sizing material. Due to changes in paper manufacturing technologies the sizing process is changed to alkaline/neutral sizing from acidic sizing. AKD and ASA are the main neutral sizing chemicals.

### **Market**

AKD/ASA are used in the form of emulsions (10% AKD/ASA) in sizing of finer qualities of paper. Compared to Acidic sizing agent (Gum Rosin), The Neutral/Alkaline Sizing Agent (AKD) is a chemical treatment that reduces machine breakdown and water recycling difficulties of the standard acidic paper manufacture process by minimizing water absorption and enhancing the surface conditions of paper during a neutral paper manufacturing process. AKD plays a significant role in minimizing the detrimental environmental impact of water contamination by facilitating the recycling of water in the paper production process.

The demand for the emulsions is estimated at 30000 tons per year and demand for AKD/ASA at about 3000 tons

### **Product mix**

It is suggested that a unit with following capacities may be set up

AKD	3000 Tons per year
ASA	1500 tons per year

### **Manufacturing process**

#### **AKD**

Alkyl ketene dimers are produced by reacting a C<sub>8</sub>-C<sub>22</sub> saturated or unsaturated linear fatty acid chloride with a cyclic tertiary amine in an inert solvent at a temperature of up to 75° C., separating tertiary amine hydrochloride salts from the alkyl ketene dimer in the solvent, and recovering the alkyl ketene dimer by distilling off of the solvent.

#### **ASA**

The addition of maleic anhydride to a normal alpha olefin generates an alkenyl succinic anhydride (ASA). Some ASAs are available commercially; alternatively, the addition is easily performed in a batch reactor and the ASA is separated from unreacted olefin by distillation. No solvent or catalyst is necessary and the technology can be practiced with entire range of normal alpha olefins from 1-butene to C<sub>30+</sub> normal alpha olefin wax.

### **Technology**

Technology can be sourced from china. CSIR labs can also develop this technology in short time

### Plant and Machinery

Glass lined and SS reaction vessels, Distillation equipment, filters, pumps

### Raw materials:

AKD ----- Fattyacids of C10 to C22 range, tertiary amines, solvents

ASA ---- Alfa-olefins, Maleic anhydride

### Utilities

Power, fuel and water requirements are moderate.

### Project cost

Capital outlay can be 40 to 50 crores

### Turnover and profitability

Turnover of Rs. 100 crores per year with 10 to 12 % net profit margins can be expected

### Suggested location

Chemical processing zone near Vizag

### Strategy/ options

This project can be planned as a multiproduct unit

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