

## ABSTRACTION

Pre-design of a methyl acrylate factory on etherification process with capacity of 60.000 ton/years in the form of liquid, has a purity of 99%. This product gives very good prospect, considering the requirement of Methyl Acrylate in Indonesia which progressively increase, industrial users especially are textile, paper, acrylic fiber industries etc. The main material of Acrylate Acid obtained from the PT. Trypolyta Indonesia and methanol from PT. KMI Bontang, East Kalimantan. The factory is planned since a time of establishment of an industrial area at Cilegon, West Java in 2012.

Methyl acrylate produced by reacting acrylic acid with methanol and sulphate acid as a catalyst. The reaction happened within a stirred reactor tank. Reactor is operated continuously in an exothermic temperature  $55^{\circ}\text{C}$  and pressure at 1 atm. A comparison between the acrylic acid and methanol used in reaction is 2 : 1. Time of reaction in the reactors is 1,3 hours. An entire output product of the reactor is in the form of liquid then it is brought to neutralizer to eliminating  $\text{H}_2\text{SO}_4$ , after that separated through a Decanter, and purified in a column of Distillation and ready to market.

Form of the company is an incorporated one with a staff and a line organization structure. A working division for the employees is done according to working hours comprise shift employees and non-shift employees.

From an economic analysis done by factory it is needed a fixed capital as big as US\$ 31,854,348.76; working capital (WC) : US\$ 14.231.049.54; BEP: 36.67%, SDP: 14.45% before-tax ROI: 38.05% after tax ROI: 19.02% before-tax POT: 2.08 years, after tax POT: 3.45 years, while before-tax returns: Rp115,130,614,596.18 and after t-tax returns as big as Rp57,565,307,298.09