



## ABSTRACT

*Preliminary design of Methyl Mercaptan plant by capacity of 20,000 tons/year is built in West Kalimantan, using the land area of 30,000 m<sup>2</sup>. This chemical plant will be operated for 330 days/year or 24 hours per day and employ about 251 employees.*

*The needs of raw material are methanol 2,616.8787 kg/hour and hidrogen sulfide 2,876.9278 kg/hour. The production process will be operated at temperature of 350°C, at pressure about 7.83 atm using Reaktor Fixed Bed Multi tube with conversion 80 %. The utilities consist of 131,076.357 kg/hour of cooling water, 487.81 kg/hour of dowtherm A, 3,229.167 kg/hour of housing water and, 120,612.34 kg/hour of steam. The power of electricity provided by PLN is about 12,000 KW . This chemical plant also uses generator set as reserve.*

*An economic analysis shows that the chemical plant needs to be covered by fixed capital of about Rp. 138.167.511.138 working capital of about Rp. 67.985.038.630. The profit before tax is Rp. 60.548.564.655 while the profit after tax is Rp. 30.274.282.327. Percentage of return on investmen (ROI) before tax is 44.01 % while after tax is 22.005 %. Pay out time (POT) before tax is 1.85 years while after tax is 3.13 years. The value of break event point (BEP) for about 40.26 % and shut down point (SDP) of about 26.36 %. Based on the economic analysis, it is concluded that plant design of Methyl Mercaptan with capacity of 20,000 tons/year is visible to be built.*