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## ABSTRACT

*Preliminary design of Epichlorohydrin Plant from Glycerin with production capacity of 125,000 ton/year is intended to fulfill epichlorohydrin demands, especially for global resins, paints and pharmacy industries. Global demands of epichlorohydrin in 2017 is estimated to be increased as much as 406 kilotons. This plant is planned to be built in Dumai, Riau, with total area of 46,3 Ha and employ over 224 persons.*

*This plant will be operated in 330 days a year. The product epichlorohydrin is liquid with 99.2% purity. Raw materials needed are 136.860,93 ton/year of glycerin, 288,866.16 ton/year of hydrochloric acid and 112,997.49 ton/year of sodium hydroxide. Based on operating condition applied, the selection of main components and kind of products being produced, this plant can be categorized as low-risk operation.*

*The production of epichlorohydrin is carried out by two main processes; production of dichlorohydrin catalyzed acetic acid and epichlorohydrin production. The first step is carried out in a reactive distillation column which operates in temperature of 102.59 – 176,56 C and pressure of 1.11 – 2,61 atm. Conversion of glycerin is 99.99 % and selectivity of 98.04 % for dichlorohydrin. The second step is carried on two continuous stirred tank reactor which arranged in series with operating temperature of 80 C and pressure of 1 atm. Reactor's product will be treated by separation equipments to produce 99,2% purity of epichlorohydrin.*

*The supporting units of production process are 57117,70 kg/jam sea-water supplying and treatment unit, 13.187,4 kg/jam steam supply unit, 3,68 kg/jam fuel supply unit, 548,77 kW electricity, pressured air supply unit, and waste treatment unit.*

*Fixed capital needed is US\$ 46,783,924 dan Rp 547.761.935.488,00 and working capital of US\$ 56,439,281 + Rp 523.829.962.562,00. Profit before tax is Rp 435.680.560.536,00 and profit after tax is Rp 326.760.420.402,00. Based on economic analysis, the Return Of Investment before tax is 22,15% and Return Of Investment after tax is 16,62%. Pay Out Time before tax is 1.67 year and Pay Out*

*Time after tax 2.10 tahun. Break Even Point is 44.87%, Shut Down Point is 31.37% and Discounted Cash Flow Rate Of Return is 37.13%. Therefore, further research on Epichlorohydrin Plant from Glycerin with production capacity of 125.000 ton/year should be carried out.*