

## INTISARI

Pabrik *Tetrafluoroethylene* (TFE) dari Chlorodifluoromethane (CDM) direncanakan akan didirikan di Dumai, Riau dengan luas area 120.000 m<sup>2</sup>. TFE adalah bahan baku dari *Polytetrafluoro ethylene* (PTFE), penggunaan TFE dalam dunia industri sekitar 99,9% digunakan untuk memproduksi PTFE.

Proses produksi TFE meliputi : CDM sebagai bahan baku diuapkan terlebih dahulu, didalam reaktor furnace terjadi reaksi pembentukan TFE dan HCl, HCl diabsorpsi di absorber, pemisahan produk dan pengotor pada menara destilasi. Tanki Penyimpanan 01 (TP-01) adalah tempat penyimpanan bahan baku Chlorodifluoromethane cair, Tanki penyimpanan 02 (TP-02) adalah tempat penyimpanan produk Tetrafluoroethylene, dan Tanki Penyimpanan 03 (TP-03) adalah tempat penyimpanan HCl 35%.

Pabrik Tetrafluoroethylene dari Chlorodifluoromethane membutuhkan bahan baku CDM dengan kadar kemurnian 99,90% sebanyak 38.860 ton/tahun. Produk yang dihasilkan pada Pabrik Tetrafluoroethylene dari Chlorodifluoromethane adalah Tetrafluoroethylene sebanyak 24.000 ton/tahun. Kebutuhan utilitas pada pabrik ini ialah listrik 19.132,65 KW, air proses 39.180 ton/tahun, udara 266.112 m<sup>3</sup>/tahun, bahan bakar 4.196 ton/tahun, dan steam 3.536 ton/tahun.

Pabrik Tetrafluoroethylene dari Chlorodifluoromethane dengan kapasitas 24.000 ton/tahun merupakan pabrik yang beresiko tinggi karena kondisi operasi menggunakan suhu tinggi dan tekanan tinggi. Modal tetap yang diperlukan sebesar US \$22.488.088,51 modal kerjanya US \$ 56.180.376,78 *Manufacturing cost* sebesar US \$25.617.492,89 dengan *general expenses* sebesar Rp 198.856.188.362,90 + US \$ 3.606.427,22. Keuntungan sebelum pajak Rp 93.173.570.000,00 dan keuntungan sesudah pajak (PPH 30%) Rp 65.221.499.000,00. Dari hasil perhitungan diperoleh *Return on Investment* (ROI) sebelum pajak 45,53 %, sesudah pajak 31,87 %. *Pay Out Time* (POT) sebelum pajak 3,01 tahun, sesudah pajak 3,8 tahun. *Break Even Point* 52,47%; *Shut Down Point* 39,13 %, dan *Discounted Cash Flow Rate Of Return* 33,28 %. Hasil evaluasi ekoomi, pabrik ini cukup menarik untuk dikaji lebih lanjut.

Kata kunci :Chlorodifluoromethane, Tetrafluoroethylene, Thermal Pyrolysis.

## ABSTRACT

*The Tetrafluoroethylene (TFE) plant from Chlorodifluoromethane (CDM) is planned to be established in Dumai, Riau with an area of 120,000 m<sup>2</sup>. TFE is the raw material of Polytetrafluoro ethylene (PTFE), the use of TFE in the industrial world is about 99.9% used to produce PTFE.*

*The TFE production process includes: CDM as raw material is evaporated first, in the furnace reactor a reaction occurs for the formation of TFE and HCl, HCl is absorbed in the absorber, product and impurities are separated in the distillation tower. Storage Tank 01 (TP-01) is a place to store liquid Chlorodifluoromethane raw materials, Storage Tank 02 (TP-02) is a place to store Tetrafluoroethylene products, and Storage Tank 03 (TP-03) is a place to store 35% HCl.*

*The Tetrafluoroethylene plant from Chlorodifluoromethane requires CDM raw materials with a purity level of 99.90% as much as 38,860 tons/year. The product produced at the Tetrafluoroethylene Plant from Chlorodifluoromethane is Tetrafluoroethylene as much as 24,000 tons/year. The utility needs at this plant are electricity 19,132.65 KW, process water 39,180 tons/year, air 266,112 m<sup>3</sup>/year, fuel 4,196 tons/year, and steam 3,536 tons/year.*

*The Tetrafluoroethylene plant from Chlorodifluoromethane with a capacity of 24,000 tons/year is a high risk plant due to operating conditions using high temperatures and high pressures. Fixed capital required is US\$22,488,088.51 working capital is US\$ 56,180,376.78 Manufacturing cost is US\$25,617,492.89 with general expenses of Rp 198,856,188,362.90 + US\$ 3,606,427.22. Profit before tax is IDR 93,173,570,000.00 and profit after tax (PPh 30%) is IDR 65,221,490,000.00. From the calculation results obtained Return on Investment (ROI) before tax 45.53%, after tax 31.87%. Pay Out Time (POT) before tax 3,01 years, after tax 3,8 years. Break Even Point 52.47%; Shut Down Point 39.13%, and Discounted Cash Flow Rate Of Return 33.28%. The results of the economic evaluation, this factory is quite interesting to be studied further.*

*Keywords: Chlorodifluoromethane, Tetrafluoroethylene, Thermal Pyrolysis.*