

## ABSTRAK

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<b>Program Studi</b>	<b>Teknik Kimia</b>
<b>Judul</b>	<b>PRA RANCANGAN PABRIK PLASTICIZER(POLYETHER THIOETHER) DENGAN KAPASITAS 2100 TON/TAHUN</b>

Produksi karet alam pada tahun 2019 mencapai 3,3 juta ton, dari jumlah tersebut 20% di olah di dalam negeri oleh industri hilir, untuk mengolah produk yang berbahan dasar karet di perlukan zat aditif berupa plasticizer yang berfungsi menghambat terjadinya waktu pra vulkanisasi sehingga karet mudah di bentuk. Hingga tahun ini, dalam negeri belum memproduksi plasticizer(polyether thioether), selama ini pemenuhan kebutuhannya dengan Impor, yang di prediksi pada tahun 2024 sebesar 2671 ton/tahun. Maka dari pendirian pabrik Plasticizer(polyetherthioether) merupakan salah satu peluang usaha untuk membantu mengurangi impor. Plasticizer(polyether thioether) di produksi menggunakan bahan baku Dithiol dan DiallylEther(2:1), direaksikan pada reaktor polimerisasi dengan suhu 80°C selama 3 jam, sebelum masuk ke reaktor DiallylEther diaktivasi dengan Azobisisobutyronitrile, setelah dari reaktor, Crude Plasticizer(polyetherthioether) dicuci menggunakan Methanol pada washing tank, untuk memisahkan Dithiol sisa reaksi. Setelah dicuci dengan methanol, produk hasil washing tank dipisahkan menggunakan Vacuum Dryer dengan suhu 75°C dan 1 mmHG selama 18 jam. Pendirian pabrik ini di lakukan analisa ekonomi sebagai berikut:

Total Moda Investasi(TCI)	:Rp. 166.304.235.696,00
Net Cash Flow Present Value(NCFPV)	:RP. 410.380.851.143,00
Internal Rate Return	:36,05%
Minimum Payback Period(MPP)	:4 Tahun 1 Bulan

Dari data analalisa ekonomi di atas dapat di simpulkan bahwa pabrik Plasticizer(polyether thioether) layak didirikan.

**Kata kunci:** Karet alam, Plasticizer(PolyetherThioether), Reaktor polimerisasi

## ABSTRACT

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**Title** **PLASTICIZER(POLYETHER THIOETHER) FACTORY  
PRE DESIGN WITH A CAPACITY OF 2100 TONS/YEAR**

Natural rubber production in 2019 reached 3.3 million tons, of which 20% was processed domestically by the downstream industry. To process rubber-based products, additives in the form of plasticizers are needed which function to inhibit the occurrence of pre-vulcanization so that rubber is easily in shape. Until this year, the country has not produced plasticizers (polyether thioether), so far it has met its needs with imports, which are predicted to be 2671 tons/year in 2024. So the establishment of a Plasticizer (polyetherthioether) factory is one of the business opportunities to help reduce imports. Plasticizer(polyether thioether) is produced using Dithiol and DiallylEther(2:1) raw materials, reacted in a polymerization reactor with a temperature of 80oC for 3 hours, before entering the reactor DiallylEther is activated with Azobisisobutyronitrile, after from the reactor, Crude Plasticizer(polyetherthioether) is washed using Methanol in the washing tank, to separate the remaining Dithiol from the reaction. After being washed with methanol, the products resulting from the washing tank were separated using a Vacuum Dryer at 75oC and 1 mmHG for 18 hours. The establishment of this factory is carried out by economic analysis as follows:

Total Investment Mode (TCI) : Rp. 166,304,235,696.00

Net Cash Flow Present Value(NCFPV) :RP. 410,380,851,143.00

Internal Rate of Return :36.05%

Minimum Payback Period(MPP) : 4 Years 1 Month

From the economic analysis data above, it can be concluded that a Plasticizer (polyether thioether) factory is feasible to establish.

Keywords: Natural rubber, Plasticizer(PolyetherThioether), Polymerization reactor