ABSTRAK

PRARANCANGAN PABRIK ASAM NITRAT (HNO_3) DARI AMONIA (NH_3) DAN OKSIGEN (O_2) DENGAN KAPASITAS 54.000 TON/TAHUN
Tugas Khusus Reaktor (RE-101)

Oleh

JIHAN SALSABILLA

Asam nitrat sering dikenal dengan nama lain aqua fortis, asam azotik, hidrogen nitrat, atau nitril oksida merupakan senyawa kimia yang sangat penting di industri kimia. Asam nitrat mempunyai rumus molekul HNO3 dan berat molekul 63,02 g/mol. Asam ini larut dalam air dan ketika bereaksi dengan air menghasilkan panas. Penyediaan kebutuhan utilitas pabrik berupa sistem pengolahan dan penyediaan air, system pengolahan limbah, sistem penyediaan steam, cooling water, sistem penyediaan udara tekan, dan sistem pembangkit tenaga listrik.

Kapasitas produksi pabrik direncanakan 54.000 ton/tahun dengan 330 hari kerja dalam 1 tahun. Lokasi pabrik direncanakan didirikan di daerah Gresik, Jawa Timur. Tenaga kerja yang dibutuhkan sebanyak 170 orang dengan bentuk badan usaha Perseroan Terbatas (PT) yang dipimpin oleh seorang Direktur Utama yang dibantu oleh Direktur Produksi dan Direktur Keuangan dengan struktur organisasi line and staff. Dari analisis ekonomi diperoleh:

Fixed Capital Investment (FCI) = Rp 447.455.321.148
Working Capital Investment (WCI) = Rp 435.531.153.242,48
Total Capital Investment (TCI) = Rp 865.776.654.346,56
Total Production Cost (TPC) = Rp 5.159.778.911.946
Break Even Point (BEP) = 47%
Shut Down Point (SDP) = 20,50%
Pay Out Time before taxes (POT) = 1,59 tahun

Mempertimbangkan rangkuman di atas, sudah selayaknya pendirian ini dikaji lebih lanjut, karena merupakan pabrik yang menguntungkan dan mempunyai prospek yang baik.

ABSTRACT

PRE-DESIGN OF A NITRIC ACID (HNO_3) PLANT FROM AMMONIA (NH_3) AND OXYGEN (O_2) WITH A CAPACITY OF 54.000 TON/YEAR

Design of Reactor (RE-101)

By

JIHAN SALSABILLA

Nitric acid, often known by other names aqua fortis, azotic acid, hydrogen nitrate, or nitrile oxide, is a chemical compound that is very important in the chemical industry. Nitric acid has the molecular formula HNO3 and a molecular weight of 63.02 g/mol. This acid is soluble in water and when it reacts with water it produces heat. Providing factory utility needs in the form of water processing and supply systems, waste processing systems, steam supply systems, cooling water, compressed air supply systems, and electric power generation systems.

The factory's production capacity is planned to be 54,000 tons/year with 330 working days in 1 year. The factory location is planned to be established in the Gresik area, East Java. The workforce required is 170 people in the form of a Limited Liability Company (PT) led by a President Director who is assisted by the Production Director and Finance Director with a line and staff organizational structure. From the economic analysis it is obtained:

Fixed Capital Investment (FCI) = IDR 447,455,321,148

Working Capital Investment (WCI) = IDR 435,531,153,242.48

Total Capital Investment (TCI) = IDR 865,776,654,346.56

Total Production Cost (TPC) = IDR 5,159,778,911,946

Break Even Point (BEP) = 47%

Shut Down Point (SDP) = 20.50%

Pay Out Time before taxes (POT) = 1.59 years

Considering the summary above, it is appropriate to study this establishment further, because it is a profitable factory and has good prospects.