

ABSTRAK

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

Oleh

KAHFI PUJI NURSETYA NINGTYAS

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 HNO_3 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:

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

Mempertimbangkan rangkuman di atas, sudah selayaknya pendirian pabrik Fenol 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 Absorber Design Special Task (AB-101)

By

KAHFI PUJI NURSETYA NINGTYAS

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 HNO_3 and a molecular weight of 63.02 g/mol. This acid dissolves in air and when it reacts with air produces heat. Providing factory utility needs in the form of air processing and supply systems, waste processing systems, steam supply systems, cooling water, compressed air supply systems, and electric power generation systems.

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

From the economic analysis obtained:

<i>Fixed Capital Investment</i>	(FCI)	= Rp 447.455.321.148
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Considering the above summary, it is appropriate that the establishment of this phenol plant should be studied further, because it is a profitable factory and has good prospects.