

ABSTRAK

PRARANCANGAN PABRIK N-BUTIL KLORIDA DARI BUTANOL DAN ASAM KLORIDA KAPASITAS 20.000 TON/TAHUN (Tugas Khusus Perancangan Reaktor (R-201))

Oleh
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Butil klorida (C_4H_9Cl) merupakan senyawa alkil halida berbentuk cairan tidak berwarna, mudah menguap, dan mudah terbakar. Senyawa ini banyak digunakan dalam industri sebagai *chemical intermediate* pada produksi farmasi, agrokimia, surfaktan, dan resin. Selain itu, butil klorida juga dimanfaatkan dalam pembuatan pestisida, analisis laboratorium, serta dalam proses polimerisasi dan produksi karet sintesis seperti *butyl rubber*, *polyurethane*, dan *viton*.

Kapasitas produksi pabrik direncanakan 20.000 ton/tahun dengan 330 hari kerja dalam 1 tahun. Lokasi pabrik direncanakan didirikan di daerah Gresik, Jawa Timur. Tenaga kerja yang dibutuhkan sebanyak 131 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)	= Rp469.235.748.752,06
<i>Working Capital Investment</i> (WCI)	= Rp117.308.937.188,02
<i>Total Cost Investment</i> (TCI)	= Rp586.544.685.940,07
<i>Break Event Point</i> (BEP)	= 49,90%
<i>Shut Down Point</i> (SDP)	= 23,76%
<i>Pay Out Time after Taxes</i> (POT) _a	= 1,911 tahun
<i>Return on Investment before taxes</i> (ROI) _b	= 42,33%
<i>Return on Investment after taxes</i> (ROI) _a	= 24,64%
<i>Discounted Cash Flow</i> (DCF)	= 33,87%.

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

Kata Kunci : Pabrik N-Butil Klorida, *Chemical Intermediate*, Reaktor

ABSTRACT

PRE-DESIGN OF A N-BUTYL CHLORIDE PLANT FROM BUTANOL AND HYDROCHLORIC ACID WITH A CAPACITY OF 20.000 TONS/YEAR (Reactor Design)

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Butyl chloride (C_4H_9Cl) is an alkyl halide compound in the form of a colorless, volatile, and flammable liquid. This compound is widely used in industry as a chemical intermediate in the production of pharmaceuticals, agrochemicals, surfactants, and resins. In addition, butyl chloride is also used in the manufacture of pesticides, laboratory analysis, and in polymerization processes and the production of synthetic rubbers such as butyl rubber, polyurethane, and viton.

The plant is designed with a production capacity of 20,000 tons per year, operating 330 days annually. The proposed plant location is Gresik area, East Java. The workforce requirement is 131 employees. The business entity will be established as a Limited Liability Company (PT), led by a President Director, assisted by a Production Director and a Finance Director, with an organizational structure based on the line-and-staff model.

From the economic analysis, the following results were obtained :

Fixed Capital Investment (FCI)	= Rp469.235.748.752,06
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Considering the summary above, the establishment of this N-Butyl Chloride plant deserves further evaluation, as it is a profitable project with strong future prospects.

Keywords : N-Butyl Chloride Plant, *Chemical Intermediate*, Reaktor