

## ABSTRAK

### PRARANCANGAN PABRIK ALUMINIUM SULFAT DARI ALUMINIUM OKSIDA DAN ASAM SULFAT KAPASITAS 28.000 TON/TAHUN (Tugas Khusus Perancangan *Rotary Dryer* – 301 (RD – 301))

Oleh

Rachel Mega Jessica Putri

Aluminium sulfat merupakan bahan kimia yang digunakan hampir di semua industri, baik sebagai bahan utama maupun sebagai bahan baku penunjang. Kegunaan produk sangat luas, mulai dari penjernihan air, aplikasi industri *pulp and paper*, penyetabil pH, antispetik, hingga aplikasi farmasi dan kosmetik.

Kapasitas produksi pabrik direncanakan 28.000 ton/tahun dengan 330 hari kerja dalam 1 tahun. Bahan baku berupa aluminium oksida dari PT. Well Harvest Winning Alumina Refinery dan asam sulfat dari PT. Petrokimia Gresik. Lokasi pabrik direncanakan didirikan di Kawasan Industri Gresik, Jawa Timur dengan tenaga kerja yang dibutuhkan sebanyak 167 orang. Bentuk badan usaha Perseroan Terbatas (PT) menggunakan struktur organisasi *line* dan *staff*. Analisis kelayakan ekonomi perancangan pabrik aluminium sulfat diperoleh:

|                                                             |                       |
|-------------------------------------------------------------|-----------------------|
| <i>Fixed Capital Investment</i> (FCI)                       | = Rp997.720.923.210   |
| <i>Working Capital Investment</i> (WCI)                     | = Rp176.068.398.214   |
| <i>Total Capital Investment</i> (TCI)                       | = Rp1.173.789.321.424 |
| <i>Break Even Point</i> (BEP)                               | = 33,40%              |
| <i>Shut Down Point</i> (SDP)                                | = 14,39%              |
| <i>Pay Out Time after Taxes</i> (POT <sub>a</sub> )         | = 2,575 tahun         |
| <i>Return on Investment after Taxes</i> (ROI <sub>a</sub> ) | = 32,16%              |
| <i>Discounted Cash Flow</i>                                 | = 39,86%              |

Mempertimbangkan paparan di atas, pendirian pabrik aluminium sulfat ini layak dikaji lebih lanjut, karena merupakan pabrik yang menguntungkan dan mempunyai masa depan yang baik.

## ABSTRACT

### MANUFACTURING OF ALUMINIUM SULFATE PLANT FROM ALUMINIUM OXIDE AND SULFURIC ACID WITH CAPACITY 28.000 TON/YEAR (Design of *Rotary Dryer* – 301 (RD – 301))

By

**Rachel Mega Jessica Putri**

Aluminium sulfate is a chemical used in almost all industries, both as a main raw material and as a supporting raw material. The product's uses are very broad, ranging from water purification, pulp and paper industry applications, pH stabilizers, antiseptics, pharmaceutical and cosmetic applications.

The production capacity of the plant is 28.000 ton/year with 330 working days in 1 year. The raw materials are aluminium oxide from PT. Well Harvest Winning Alumina Refinery and sulfuric acid from PT. Petrokimia Gresik. The location of the plant is planned to be established in the Gresik Industrial Area, East Java with the number of employees is 167 people. The form of the Limited Liability Company ( Perseroan Terbatas /PT) business entity uses a line and staff organizational structure. The economic feasibility analysis of the aluminium sulfate plant design is obtained:

|                                                             |                       |
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Considering the explanation above, the establishment of this aluminium sulfate plant is worth further study, because it is a profitable factory and has a good prospect.