

## ABSTRACT

### MANUFACTURING OF OXALIC ACID DIHYDRATE ((COOH)<sub>2</sub>·2H<sub>2</sub>O) FROM GLUCOSE (C<sub>6</sub>H<sub>12</sub>O<sub>6</sub>) AND NITRIC ACID (HNO<sub>3</sub>) WITH CAPACITY 42.000 TONS/YEAR (Design of Crystallizer (CR-301))

By

YUNIKE NURJANNAH

Oxalic Acid plant with materials, Glucose (C<sub>6</sub>H<sub>12</sub>O<sub>6</sub>) and Nitric Acid (HNO<sub>3</sub>) is planned to be built in Lampung, South of Sumatra. Establishment of this plant is based on some consideration due to the raw material resources, the transportation, the labors availability and also the environmental condition.

This plant is mean to produce 42.000 tons/year Oxalic Acid with operation time 24 hour/day, 330 hour/year. Raw materials used consist of Glucose 3.422,39 Kg/hour and 789,6979 Kg/hour of Nitrit Acid.

The utility units consist of water supply system, steam supply system, utility units, instrument air supply system, refrigerant supply system and waste treatment system.

The bussines entity formis Limited Liability Company (PT) using line and staff organizational structure with 149 labors.

From the economic analysis, itis obtained that:

<i>Fixed Capital Investment</i>	(FCI)	=	Rp 2.358.659.066.989,-
<i>Working Capital Investment</i>	(WCI)	=	Rp. 274.741.883.167,-
<i>Total Capital Investment</i>	(TCI)	=	Rp. 2.633.400.950.156,-
<i>Break Even Point</i>	(BEP)	=	51,02%
<i>Shut Down Point</i>	(SDP)	=	24,45%
<i>Pay Out Time before taxes</i>	(POT) <sub>b</sub>	=	3,17 tahun
<i>Pay Out Time after taxes</i>	(POT) <sub>a</sub>	=	3,67 tahun
<i>Return on Investment before taxes</i>	(ROI) <sub>b</sub>	=	22,36%
<i>Return on Investment after taxes</i>	(ROI) <sub>a</sub>	=	21,85%
<i>Discounted cash flow</i>	(DCF)	=	17,48%

Considering the summary above,it is proper to study the establishment of Oxalic Acid plant further, because the plant is profitable and has good prospects.

## ABSTRAK

### PRARANCANGAN PABRIK ASAM OKSALAT DIHIDRAT ((COOH)<sub>2</sub>.2H<sub>2</sub>O) DARI GLUKOSA (C<sub>6</sub>H<sub>12</sub>O<sub>6</sub>) DAN ASAM NITRAT (HNO<sub>3</sub>) DENGAN KAPASITAS 42.000 TON/TAHUN (Perancangan *Crystallizer* (CR-301))

Oleh

YUNIKE NURJANNAH

Pabrik Asam Oksalat berbahan baku Glukosa dan Asam Nitrat direncanakan didirikan di kawasan Kecamatan Katibung, Kabupaten Lampung Selatan Provinsi Lampung. Pendirian pabrik berdasarkan atas pertimbangan ketersediaan bahan baku, sarana transportasi yang memadai, tenaga kerja yang mudah didapatkan, dan kondisi lingkungan.

Pabrik direncanakan memproduksi Asam Oksalat sebanyak 42.000 ton/tahun, dengan waktu operasi 24 jam/hari, 330 hari/tahun. Bahan baku yang digunakan adalah Glukosa sebanyak 3.422,39 kg/jam dan Asam Nitrat sebanyak 14.374,07 kg/jam.

Penyediaan kebutuhan utilitas pabrik terdiri dari unit pengadaan air, unit penyedia *steam*, unit penyedia listrik dan udara instrument, unit penyedia air pendingin, dan pengolahan limbah.

Bentuk perusahaan adalah Perseroan Terbatas (PT) menggunakan struktur organisasi *line* dan *staff* dengan jumlah karyawan sebanyak 149 orang.

Dari analisis ekonomi diperoleh:

<i>Fixed Capital Investment</i>	(FCI)	=	Rp. 2.358.659.066.989,-
<i>Working Capital Investment</i>	(WCI)	=	Rp. 274.741.883.167,-
<i>Total Capital Investment</i>	(TCI)	=	Rp. 2.633.400.950.156,-
<i>Break Even Point</i>	(BEP)	=	51,02%
<i>Shut Down Point</i>	(SDP)	=	24,45%
<i>Pay Out Time before Taxes</i>	(POT) <sub>b</sub>	=	3,17 tahun
<i>Pay Out Time after Taxes</i>	(POT) <sub>a</sub>	=	3,67 tahun
<i>Return on Investment before Taxes</i>	(ROI) <sub>b</sub>	=	21,85%
<i>Return on Investment after taxes</i>	(ROI) <sub>a</sub>	=	17,48%

Mempertimbangkan paparan diatas, sudah selayaknya pendirian pabrik Asam Oksalat ini dikaji lebih lanjut, karena merupakan pabrik yang menguntungkan dan mempunyai masa depan yang baik.