

## ABSTRAK

### PRARANCANGAN PABRIK SILIKON DIOKSIDA (SiO<sub>2</sub>) DARI ABU SEKAM PADI DENGAN KAPASITAS 30.000 TON/TAHUN Perancangan *Rotary Dryer* (RD-301)

Oleh

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Pabrik Silikon dioksida berbahan baku Abu Sekam Padi direncanakan didirikan di Lamongan, Jawa Timur. Pendirian pabrik berdasarkan atas pertimbangan ketersediaan bahan baku, sarana transportasi yang memadai, tenaga kerja yang mudah didapatkan, dan kondisi lingkungan. Pabrik direncanakan memproduksi Silikon dioksida sebanyak 30.000 ton/tahun, dengan waktu operasi 24 jam/hari, 330 hari/tahun. Bahan baku yang digunakan adalah Abu Sekam Padi sebanyak 5.079,97 kg/jam. Penyediaan kebutuhan utilitas pabrik terdiri dari unit pengolahan air, air demin, *steam*, udara instrument, listrik, dan pengolahan limbah.

Bentuk perusahaan adalah Perseroan Terbatas (PT) menggunakan struktur organisasi *line* dan *staff* dengan jumlah karyawan sebanyak 160 orang. Dari analisis ekonomi diperoleh:

<i>Fixed Capital Investment</i>	(FCI)	=	Rp. 635.619.612.037,-
<i>Working Capital Investment</i>	(WCI)	=	Rp. 112.168.166.830,-
<i>Total Capital Investment</i>	(TCI)	=	Rp. 747.787.778.867,-
<i>Break Even Point</i>	(BEP)	=	51,62 %
<i>Shut Down Point</i>	(SDP)	=	22,00 %
<i>Pay Out Time before taxes</i>	(POT) <sub>b</sub>	=	3,26 tahun
<i>Pay Out Time after taxes</i>	(POT) <sub>a</sub>	=	3,76 tahun
<i>Return on Investment before taxes</i>	(ROI) <sub>b</sub>	=	17,61 %
<i>Return on Investment after taxes</i>	(ROI) <sub>a</sub>	=	14,08 %
<i>Discounted cash flow</i>	(DCF)	=	32,99 %

Mempertimbangkan paparan di atas, sudah selayaknya pendirian pabrik silikon dioksida ini dikaji lebih lanjut, karena merupakan pabrik yang menguntungkan dan mempunyai masa depan yang baik.

Kata Kunci: Abu Sekam Padi, Silikon dioksida

## **ABSTRACT**

### **MANUFACTURING OF SILICON DIOXIDE (SiO<sub>2</sub>) FROM RICE HUSK ASH WITH CAPACITY 30.000 TONS/YEAR Design of Rotary Dryer (RD-301)**

**By**

**RIDWAN SANTOSO**

*Silicon dioxide plant with materials Rice Husk Ash is planned to be built in Lamongan, East Java. Establishment of this plant is based on some consideration due to the raw material resources, the transportation, the labor availability, and also the environmental condition. This plant is meant to produce 30.000 tons/year Silicon dioxide with operation time 24 hour/day, 330 hour/year. Raw materials used consist of 5.079,97 kg/hour of Rice Husk Ash. The utility units consist of water supply system, demin water, steam, instrument air, electricity and waste treatment system.*

*The business entity form is Limited Liability Company (Ltd) using line and staff organizational structure with 160 laborers. From the economic analysis, it is obtained that:*

<i>Fixed Capital Investment</i>	<i>(FCI)</i>	<i>=</i>	<i>Rp. 635.619.612.037,-</i>
<i>Working Capital Investment</i>	<i>(WCI)</i>	<i>=</i>	<i>Rp. 112.168.166.830,-</i>
<i>Total Capital Investment</i>	<i>(TCI)</i>	<i>=</i>	<i>Rp. 747.787.778.867,-</i>
<i>Break Even Point</i>	<i>(BEP)</i>	<i>=</i>	<i>51,62%</i>
<i>Shut Down Point</i>	<i>(SDP)</i>	<i>=</i>	<i>22,00%</i>
<i>Pay Out Time before taxes</i>	<i>(POT)<sub>b</sub></i>	<i>=</i>	<i>3,26 tahun</i>
<i>Pay Out Time after taxes</i>	<i>(POT)<sub>a</sub></i>	<i>=</i>	<i>3,76 tahun</i>
<i>Return on Investment before taxes</i>	<i>(ROI)<sub>b</sub></i>	<i>=</i>	<i>17,61%</i>
<i>Return on Investment after taxes</i>	<i>(ROI)<sub>a</sub></i>	<i>=</i>	<i>14,08%</i>
<i>Discounted cash flow</i>	<i>(DCF)</i>	<i>=</i>	<i>32,99%</i>

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

*Keyword: Rice Husk Ash, Silicon dioxide*