Silica from Rice Husk

Capacity:  
Silica : 10.0 MT/ Day,
Calcium Carbonate: 21.0 MT/ Day

Plant and machinery cost:  
607.00 Lakh

Working Capital:  
0.00 Lakh

Rate of return (ROR):  
16.00 %

Break Even Point (BEP):  
51.00 %

TCI:  
1617.00 Lakh

Cost of Project:  
1617.00 Lakh
The rice husk contains about 75% organic volatile matter & the balance 25% of the weight of this husk is converted into ash during the firing process, is known as rice husk ash (RHA). This RHA in turn contains around 85% to 92% amorphous silica. Silica is one of the valuable inorganic chemical compounds. It can exist in gel, crystalline and amorphous forms. It is the most abundant material in the earth’s crust. Silica is the major constituent of rice husk ash. With such a large ash content & silica content in the ash it becomes economical to extract silica from the ash, which has wide market & also takes care of ash disposal. These silica have high surface area, generally greater than 3m²/g. Micro amorphous silica can be further divided into micro particulate silica microscopic sheets & fibers & hydrated amorphous silica. The micro particulate silica is the most important group commercially & includes gynogenic silica’s & silica precipitated from aqueous solution. Uses & Applications Precipitated silica is used as filler for paper & rubber as a carrier & diluents for agricultural chemicals, as an anti caking agent, to control viscosity & thickness and as a cleansing agent in toothpastes & in cosmetics. Precipitated silica also finds its applications as anti caking agents in food industry & as thermal insulators. Precipitated silica is perhaps the best not black filler and reinforcing agent used in rubber industry especially for the production of silicon rubber. The ash produced after the husks have been burned is high in silica. RHA can be used in a variety of application like: green concrete; high performance concrete; ceramic glaze; water proofing chemicals; roofing shingles; insulator; specialty paints; flame retardants; carrier for pesticides and insecticides & bio fertilizers etc. Market Survey Precipitated Silica is used as filler for paper & rubber as a carrier & diluents for agricultural chemicals, as an anti caking agent, to control viscosity & thickness and as molecular sieves. So, we can better understand the growing demand of precipitated silica by seeing the demand of the following industries. Silicon is a unique material. Its abundance is one of the reasons it is used for a wide range of purposes. One of the most important uses of silicon is as a core element of microchips. To manufacture microchips, the microelectronics industry requires silicon with an impurity level of 10⁻¹¹. Since silicon forms a stable compound with oxygen (silicon oxide, SiO₂), the deoxidization of silicon oxide needed to reach this high level of purity consumes a substantial amount of energy, which, in turn, affects the environment through emissions of carbon dioxide (CO₂). Precipitated silica accounts for the largest share of specialty silica demand in both volume and value terms. This silica type will also constitute the fastest growing segment of the market, aided by above average gains in its primary market, tire rubber. Increasing use of precipitated silica as a replacement for carbon black in tire reinforcement applications in the U.S. will offer significant opportunities for growth. Fumed silica represents the second largest product type in value terms, owing to its higher price relative to other silica types.