SILICA PLANT FROM BAGASSE ASH WITH PRECIPITATION PROCESS

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Abstract
Silica is a raw material of glass industry, ceramic industry, cosmetic industry, etc. This plant is located at Kediri, East Java. This plant use material from bagasse ash, the content of 70.97% silica with Aldcroft’s Precipitation process.

Silica from bagasse ash with the precipitation processes through a 6 steps. The first step is extraction process to form sodium silicate from bagasse ash with NaOH 2N solution at 120°C. The second step is precipitation process to form silica by reacting sodium silicate with H₂SO₄ 38% and NaCl 36.3% solution at 100°C. Third step is filtration process to separate silica from impurities. Fourth step is drying process to reduce moisture silica. Fifth step is milling process to scant silica size to 200 mesh. And the last step is screening process to screen and homogenation size of silica.

Silica plant works and operates semi-continuous for 330 days/year with a production capacity of 21,264,83 ton/year. Bagasse ash that needed is around 30,035 ton/year with supporting materials like NaOH, H₂SO₄, and NaCl. The utility needs are cooling water, boiler feed water, and process water respectively 286,14 m³/year, 175,365m³/year, and 427,70 m³/year. Waste generated from this industry is residue bagasse ash, slurry leaching waste, and cyclone dust.

Keyword: Bagasse Ash, Silica, Precipitation