SORBITOL PLANT FROM CASSAVA (Manihot esculenta) FLOUR WITH CATALYTIC HYDROGENATION PROCESS

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Abstract

Sorbitol is alcohol sugar which have solubility in water. Raw material sorbitol plant is cassava flour. Plant sorbitol are processed by the catalytic hydrogenation process with a capacity of 139,393,939 kg/day. Location of new factories in Semarang was chosen based on the marketing, water, and ease of transportation.

Sorbitol manufacturing process includes four stages. In the first stage of cassava flour subjected to dekstrination process cassava flour can be dekstrin at 95 °C at 1 atm for 3 hours. The second stage is the sakarification process is the process of change dekstrin into dekstrosa at 60 °C and at 1 atm for 48 hours. The third stage is the hydrogenation catalytic process which lasted for 1 hours with the addition of H₂ and Raney Nickel catalyst at the operating conditions of 135-205 °C and pressure of 100-140 atm. From this process cassava flour can be sorbitol. And the last stage is carbonisation which is the absorption of the colour that occurred during the process.

Sorbitol plant is operate semi-continously for 330 days per year, 24 hours per day, thus requiring cassava flour 30,460,017.37 kg/day with supporters materials is CaOH₂, enzim amylase, enzim gluamilase, H₂ gas, dan Raey Nickel. The water utilities required for this plant are makeup water 363,391 m³/day, sanitation water 98,532 m³/day, and process water 1,506 m³/day.

Key Word : sorbitol, catalytic hidrogenation, cassava flour.