BASE OIL PLANT FROM RICE BRAN OIL WITH ESTERIFICATION PROCESS

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Abstract
Base oil is the basic ingredient the production of lubricant oil. Raw material of base oil plant is rice bran oil. Plant base oils are processed by the esterification process with a capacity of 92876,7 kg/day. Location of new factories in Riau was chosen based on the marketing, water, and ease of transportation.

Base oil manufacturing process includes three stages. In the first stage of rice bran oil subjected to purification process which consists of degumming. The second stage is the hydrolysis process is the process of change triglyceride into fatty acid. The third stage is the esterification process which lasted for 7 hours with the addition of ZnCl₂ catalyst at the operating conditions of 240°C and pressure of 1000 kPa. From this process base oil can be obtained.

Base oil plant is operate semi-continuously for 330 days per year, 24 hours per day, thus requiring rice bran oil 103700 kg/day with supporters materials is phosphate acid, trimetylolpropane, and ZnCl₂. Water sanitation utility requirement is for 220 m³/day, cooling water for 33,93 m³/day, boiler water for 951,64 m³/day and process water for 46,84 m³/day.

Key words: base oil, esterification, rice bran oil