

SUMMARY

Gede Rediasa, Department of Mechanical Engineering, Faculty of Engineering, University Brawijaya, May 2016, Effect of Temperature Variation Characteristics Cooling Bath against Butane Propane Mixed Gas Hydrates at 2 Bar Pressure. Supervisor: Widya Wijayanti

Gas hydrates are formed due to the mixture of water and natural gas at high pressure systems and low temperatures. Lots of research has been done to look at some of the characteristics of gas hydrate itself. One is the effect of temperature variations on the characteristics of the *cooling bath* mixture of propane butane gas hydrates. These characteristics include the rate of formation, the stability of the hydrate and hydrate storage capacity. Research on the characteristics applied to gas hydrate *storage* and preventive and gas hydrate decomposition that occurs in the natural gas line to the petroleum industry.

Research at the rate of hydrate formation, *crystallizer* cleaned with aquadest and 50 cm³ aquadest incorporated into the *crystallizer*. A mixture of propane, butane incorporated into the *crystallizer* with a pressure of 2 bar. *Crystallizer* put in a cooling bath, and then the temperature of the cooling bath set according to variations in temperature (269 K, 271 K, 273 K, 275 K and 277 K) and adjust the motor speed of 200 rpm. Research rate of hydrate formation carried out during 10 hours at any temperature variations. After the process of formation of hydrate hydrate followed by stability testing. Gas hydrates are not being discharged at a rate of hydrate formation prior to stability testing. Stabilitas testing conducted for 5 hours at a constant temperature *bath cooling* (268 K) at any temperature variations. Tests conducted after the storage capacity hydrate hydrate stability. To investigate hydrate storage capacity, the system was allowed to reach room temperature, causing the gas trapped in hydrates apart. Large storage capacity is calculated from the ratio of the volume of gas that decomposes to room temperature to the volume of gas hydrate theoretically.

The influence of variations in temperature will affect the temperature of *cooling bath* hydrate formation. And obtained at temperatures of 269 K has the fastest rate of formation of the gas consumption of the smallest but after the establishment for 10 hours. And after settling at a temperature of 268 K for 5 hours to test the level of stability, it was found that the temperature of 269 K has kstabilan rate is highest among the other temperatures. And temperatures have the largest storage capacity is a temperature of 275 K

Keywords: *Gas hydrate, the rate of formation, stability, storage capacity*