PERFORMANCE ANALYSIS OF WASTE HEAT BOILER WITH HEAT AND MASS BALANCE METHOD AT PLANT 1 PT.PETROKIMIA GRESIK

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Abstract

Performance analysis of waste heat boiler has been carried with heat and mass balance method at plant 1 PT.Petrokomia Gresik, heat and mass balance method used to derive the mathematical model equations of each component WHB, which will then be used to simulate the processes that exist in order to WHB to know the performance of the WHB. From the analysis of simulation results is known that the produc steam generated is 18,370 kg / s, where installed capacity contained in the waste heat boiler plant 1 PT.Petrokomia Gresik was 25,000 kg / s, so that can know the efficiency of the resulting product is 73.470%. The addition of fuel on WHB too big, so there is a lot of exhaust heat, which resulted in WHB performance is not optimal. To reach the steam temperature as expected that is equal to 460,000 °C, Additional fuel savings of 42,000% of 19,650 kJ / s to 111,870 kJ / s. With the fuel savings are to be got by the burner heating value generated for 5,913 \( \times 10^6 \) kJ / s and the heat dumped into the main stack by 7,625 \( \times 10^5 \) kJ / s so that can know the efficiency of heat on the WHB is 87.010%. At Real plant efficiency smaller is 86.680% and generated far exceeds the temperature set point of 706,700 °C It is expected that there is no heat dumped into the main stack so that fuel consumption can be optimized. To optimize the fuel consumption in the waste heat boiler can be designed monitoring system regarding how much fuel and how much remains that have been used and can also be designed valve control system and oksigen analyzer of fuel from the monitoring results that have been made.

Kata kunci : analysis, performance, waste heat boilers
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