

ABSTRACT

EFFECT OF TEMPERATURE VARIATION ON PACK CARBURIZING PROCESS TO HARDNESS AND THE CHEMICAL COMPOSITION OF STEEL ST41

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Based on the high market demand for steel is strong and resilient in machine construction, then one of them to increase the surface hardness of steel is to pack carburizing process with quenching cooling medium is expected to be increased hardness steel. Ack carburizing process is one method used to increase the carbon content in the steel using solid media. Heating that used in this research, using a temperature of 850 °C, 900 °C, 950 °C with detention time of 30 minutes. The purpose of this research was to determine the effect of variations in temperature carbonization of violence low carbon steel ST41 and determine changes in the chemical composition of low-carbon steel ST41. This research uses low-carbon steel ST41, using the catalyst shell egg shells and activated carbon using coconut shell charcoal, then given a pack carburizing treatment followed by a cooling medium using water. This experiment is a micro Vickers hardness test and test chemical composition. The results from this research with an average hardness of 142.84 HV raw material, after the pack carburizing process at temperatures of 231.9333 HV 850 0C, 900 0C temperature of 270.1 HV and 950 0C temperature of 385.9667 HV and the results of composition chemical element of carbon at a temperature of 850 0C at 0.0952%, a temperature of 900 0C at 0.152%, a temperature of 950 0C at 0.190% and amounted to 0.0723% of raw material. It shows that there are differences in hardness and chemical composition of the steel ST41 between before and after have a process of pack carburizing with temperature variation so that it can be concluded that the temperature variation in the pack carburizing and quenching effect on the level of violence and the chemical composition of the low-carbon steel ST41.

Kata kunci : Baja ST41, *pack carburizing*, temperatur, kekerasan, komposisi kimia.