

ABSTRACT

This research aimed to find out the effect of Tamarind wood charcoal in carburizing process on the mechanical properties and microstructures of the SS 400 steel.

The media of carburizing process used in this research was the Tamarind wood charcoal with a weight percentage of 60% and heterogeneous catalyst of CaCO_3 with weight percentage of 40%. The carburizing process was carried out for 60 minutes of holding time at a constant temperature of 850°C and it was followed by different media of quenching that were 15W40 oil and water.

The result of the tensile test done in this research shows that the properties of the carburizing materials followed by quenching with different media such as 15W40 oil and water were more ductile than the raw material. The hardness number of raw material was 191,53 VHN, the hardness number of carburizing material with oil quenching was 412,00 VHN, and with water quenching was 508,64 VHN. The micro photo of carburizing material with water quenching shows that it has a pearlite phase that was more dominant than the raw material and carburizing material with oil quenching.

Keywords: carburizing, quenching, tensile test, hardness, microstructures.