

ABSTRACT

Coal is an alternative fuel that quality can be seen from its contents, one of which is like a calorific value. In this study, the calorific value will be characterized using the capacitance value and resistance. Capacitance was measured using a cylindrical capacitive sensor while the resistance value uses a copper email connecting the sensor that is connected to the LCR meter. From several frequencies, we get a frequency of 1 KHz which shows a stable capacitance and resistance value. From the capacitance value, mathematically the permittivity value will also be obtained. Similar to the resistance value, the resistivity value will be mathematically obtained. Value is found in sample A with 3,441 calories, measured capacitance is 18,26 pF and the permittivity is 63,9 pF/m. The lowest value in the K sample with a calorific value of 5,626, measured the capacitance of 14.48 pF and obtained a permittivity of 50.6 pF/m. While the highest resistance and determination of resistivity in sample A with 3,441 calories is 160,1 M Ω and 15.200 $\Omega.m$ is obtained. The lowest value in the H sample with a calorific value of 5,349, measured the resistance of 7,72 M Ω and found a resistivity of 700 M $\Omega.m$. Based on the research conducted, the results of the measurement of the capacitance value and the determination of coal permittivity have very little effect on the calorific value of the coal while the effect of the value of resistance and determination of resistivity is not significant because of the effect of other contents present on the coal

Keywords: Coal, calorific value, capacitance, resistance, resistivity, permittivity, Non Destructive Testing