

ABSTRACT

Acoustic material needs at this time began to grow. However, existing material such as glass wool and rock wool is not economical when implemented on a small industry and households. On the other hand, the utilization of waste is one of the alternative raw materials that can be used. Recorded 13% of the total production of waste per day is a waste of paper. Additionally, waste paper selected as the base material because it has a porous network. Therefore, testing for the manufacture of acoustic material made from duplex paper. The material is made from a mixture of water and Portland cement as an adhesive. Testing is done by adjusting the ratio between the adhesive: paper: water, 1: 3: 24, 1: 3: 36, and 1: 3: 48 and the variable thickness of 1.5 cm, 2.5 cm, and 4.0 cm.

After the acoustic material is formed, tested the absorption coefficient using an impedance tube with two microphone transfer function method. Tests were conducted at a frequency range of 64 Hz - 6300 Hz, as the validity of the obtained frequencies. The results of the test, the panel thickness of 1.5 cm to value ratio 1: 3: 24, 0.38 absorption coefficient values in the high frequency range. While the panel thickness 4.0 cm with a ratio value of 1: 3: 36 has a value of the absorption coefficient reaches 0.6 in the frequency range of the spring. Of all the test results show the panel the higher the frequency the higher the absorption coefficient values were tested.

Keywords: Acoustical Material, Duplex Paper, Absorption Coefficient, Impedance Tube