

ABSTRACT

The identification of a material is the process of conducting tests to maintain the quality of the material. This test can be done with the Non Destructive Testing method which can evaluate the material on the object of research without damaging it. Testing using the NDT method has several physical properties, one of which is a magnetic field. The magnetic field is formed due to a current that induces a conducting conductor. In the previous research, the experiment was made with a rectangular multicellular conveyor. Then, in this research, a simulation was carried out to modify the distribution of the magnetic field. Therefore, a rectangular multi coil magnetic field simulation was made in this study, with input variations of 0.2 Ampere, 0.26 Ampere; and 0.33 Ampere as well as a variation of the observation distance of 0.3 cm; 0.6 cm; and 1 cm. Another variation is the number of turns of 120 turns, and the wire diameter of 0.5 mm. The largest magnetic field occurs in the current parameter of 0.33 Ampere, the number of turns of 120 turns, 0.5 mm of wire diameter, and 0.3 cm of observation distance with the magnitude of the magnetic field, namely 0.1 Gauss to 4 Gauss. Meanwhile, the simulation magnitude of the magnetic field is 1.180 Gauss to 1.194 Gauss. The difference in the magnitude of the magnetic field is influenced by external factors in experimental measurements.

Keywords : *NDT, multicoil rectangular, magnetic field distribution*