EXPERIMENTAL STUDY THE EFFECT OF VARIATION IN ADDITION VOLUME FRACTION OF GRAPHITE FLUIDITY CHARACTERISTICS AND MECHANICAL PROPERTIES OF ALUMINUM GRAPHITE MATRIX COMPOSITE

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Abstract

In this era of industrial modernization required for the creation of materials that meet the desired criteria, one of the desired properties is the ability to fill the mold molten metal in the casting process. Fluidity test (Test fluidity) was used to test that ability. Fluidity is one method to determine the characteristics of the flow rate of a liquid metal against mold. Fluidity used as an indicator to determine the quality of a liquid metal fills the cavity space in print. This research was conducted with aluminum as the matrix material and graphite as reinforcement. Graphite used had levels of 0%, 1%, 2%, 4%, 6%, and 8% volume fraction. The production process is done by using a stir casting process. Aluminum melting and mixing process with graphite performed at a temperature of 850 °C. Stirring was carried out for 15 minutes. Aluminum and graphite mixture is poured into a mold such that the corresponding pattern on the fluidity mold and cooled at room temperature. After this process, the material is tested hardness and metallographic test. The results obtained with the test material is graphite content which will have a length of more fluidity which has decrease. And more and more material has a percentage amount of graphite will have a hardness with a higher value.

Keywords: composit, fluidity, aluminium, graphite, violence, microstructure