Variation of Lapindo Mud As A Binding Material Lumajang Sand Casting of Alumunium From Used Pistons Against Hardness And Porosity Tests Casting Results
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ABSTRACT

Metal casting is process of heating metal until it melts witch is then poured into a mold to produce a product. The mold that is often used is sand mold which has temporary properties. The materials used as molds and binders in this study were lumajang sand, lapindo mud and bentonite. In this study, the us of variations in mold composition consisted of composition (81% lumajang sand, 9% lapindo mud, 2% bentonite, 8% water), composition 2 (76% lumajang sand, 12% lapindo mud, 4% bentonite, 8% water), composition 3 (71% lumajang sand, 15% lapindo mud, 6% bentonite, 8% water) and the materialmelted down is aluminum from used pistons. The results of the heardness test of the casting specimens were in composition 1 with an average value of 30.4 HRA, composition 2 with an average value of 32.7 HRA and composition 3 with an average value of 33.6 HRA. Porosity test results on aluminum casting specimens from used piston in composition 1 with an average value 25%, composition with an average value of 14.7% and in composition 3 with an average value 13.7%. So it can be concluded that the higher the use of lapindo mud as a binder can increase the hardness value of the casting specimens and the porosity value effects the hardness value. Where the higher the value of the porosity, the resulting hardness value will be lower. The best mold composition is the 3rd composition, because is has the highest hardness value and the lowest porosity value of the other composition.

Keywords : Sand Casting, Lumajang Sand, Lapindo Muld, Benotnite, Used Piston, Mold Composition Variation, Rockwell A Hardness Test, Porosity Test.