THE EFFECT OF THE PRESENTAGE OF SILICA SAND AND BENTONITE COMPOSITION AS MOLDS IN USED PISTON BASED METAL CASTINGS ON HARDNESS AND BENDING STRENGTH

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ABSTRACT

Silica sand is a type of sand that can be used in the foundry industry which is produced from quartz sand mining. Utilization of silica sand is also an alternative in the utilization of available natural resources and becomes a new opportunity. In this research Silica and Bentonite sand were used as metal casting mold materials. The purpose of this research is to find out how the influence of variations in the composition of Silica sand and Bentonite on Sand casting metal castings. Variation of composition 1 consists of 81% silica sand, 9% bentonite, 10% water. The second variation consists of 78% Silica Sand, 12% Bentonite, 10% Water. The 3rd variation consists of 75% Silica Sand, 15% Bentonite, 10% Water. The results obtained in this research were that composition 1 obtained an average hardness value of 23.80 HRA and a bending value of 483.75 Mpa. In the second composition, the average hardness value is 27.00 HRA and the bending value is 382.5 MPa. The third composition has an average roughness value of 31.07 HRA and a bending value of 382.5 MPa. From the results of this research it can be concluded that specimen 1 is ductile and specimen 2 and 3 are brittle.

***Key words**: Mold and Bentonite Binder, Used Piston, Used Piston, Hardness and Bending Test, Variation of Silica Sand*