



**AN INVESTIGATION ON MECHANICAL
PROPERTIES OF CAST PRODUCTS USING
TAGUCHI APPROACH**

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“I declared that this thesis is the result of my own work except the ideas and summaries which I have clarified their sources. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any degree.”

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ABSTRACT

Quality of sand casting defined as free from defect and had good mechanical properties and metallurgical structure. It were determined by manipulated some of factors which influenced the mechanical properties of finish product. The experiment were conducted to analyze the relationship between chosen parameters to the tensile of aluminium cast using taguchi approach. Tensile result indicated the optimized parameter through green sand mixture properties. Green sand mixture were produced by varied the parameters between water content (80ml,100ml, and 120ml) and grain size of silica sand (250 μ , 180 μ , and 125 μ). The pouring temperature also varied from 700°C to 900°C. As a result, mechanical properties of finish part are affected by a good green sand mixture which can be obtained by increased the permeability and compression strength of molding sand. Result showed that it can be improved by using finesses sand grain of silica sand and appropriate of water content. An experiment also indicated highest value of pouring temperature result the good mechanical properties. Taguchi analysis showed the best parameter of grain sand, pouring temperature and water content for the experiment was 250 μ , 900°C, and 100ml respectively. Analysis of Variance (ANOVA) validated that pouring temperature give higher contribution to quality of product produced.

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