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A STUDY ON THE INFLUENCE OF WELDING PARAMETERS IN GAS TUNGSTEN ARC WELDING OF AA 5083 USING ANOVA

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ABSTRACT

The present work deals with the study on the influence of Welding Parameters such as Welding current and Shielding gas flow rate in Gas Tungsten Arc welding of Al 5083 alloy. The working ranges of welding parameters are obtained by conducting large number of trials and from literature review. The present work consists of two factors and two levels, so a two level full factorial experimental design is selected with two replications for each experiment. The experiment is conducted according to the order of experimental matrix obtained from the Design of Experiment (DOE). After conducting the experiment the welded specimens are subjected to various testing's such as Tensile test, Microhardness test, Microstructure study, Macrostructure study and Fractrography (SEM). The test results are analysed using MINITAB software and ANOVA is performed to find out the effect of Welding current and Shielding gas flow rate on Ultimate tensile strength, Percentage elongation and Microhardness.

KEYWORDS: TIG Welding, Aluminium 5083 Alloy, Welding Current, Shielding Gas Flow Rate, Design of Experiment, ANOVA