# A STUDY ON THE EFFECT OF HEAT INPUT TO THE FRACTURE TOUGHNESS OF SA 36 LOW CARBON STEEL WELD METAL

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# ABSTRACT

The aim of this study is to examine the effect various welding heat input on the change of mechanical behavior of S A3 6 type weld mild steel. The experimental data of fracture toughness of the SA36 type mild steel with 0.2% carbon content weldment produced by Metal Inert Gas welding (MIG) method with welding code ASME IX are presented. Results for the weldment were obtained on the weld metal fabricated. The tensile test and fracture toughness test conducted according to BS2782 part 9: 1998 and BS7448 part 1:1991. Results show that the increase of welding heat input (17volt, 21 volt and 23volt) has significant effect on the change of weld mild steel microstructure. The increase of heat input caused softening of the weld metal and heat affected zone (HAZ) due to the microstructural change and microstructural coarsening. Consequently the microstructure change influenced on the increment of weld metal yields strength, *a* and decrement on weld metal fracture toughness, J.

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