

# Abstract

The objective of this research is to study the effect of welding process on mechanical properties of hard facing carbon steel with fused tungsten carbide. The hard facing welds were performed by oxyacetylene and gas tungsten arc welding. Various experiments are carried out by that processes. For GTAW, the current are varied from 90 to 120 ampere at constant welding speed. Carburizing flame is used in oxyacetylene welding process. The result is exhibited that at the current of 110 ampere the distribution of tungsten carbide in weld metal is even. The hardness of the welds using OAW is higher than that of GTAW process which is 868.86 HV and 664.56 HV in respectively due to the distribution of tungsten carbide at the bottom of the welds. For the welds microstructure of both processes are consisted of ferrite and pearlite with fine grain structure. In addition, the welding speed has an effect on the microstructure and mechanical properties of the welds.