STUDY OF RE-WELDING PROCESS VARIATION TO THE WELDING DEFECTS AND HARDNESS IN ALUMINIUM 5083

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ABSTRACT

The applications of aluminium is widely used in the shipping industry. Aluminium and aluminium alloy, is a lightweight metal that has high strength, resistant to corrosion, electrical conductors are quite good and also lighter than iron or steel. Welding process for aluminium is Gas Metal Arc Welding (GMAW) or known as MIG welding. Due to replating process or welding fault in the existing join it is necessary to repair. In this final project, re-welding process was carried out four times to find out influence on the value of hardness as well as welding defects caused.

From the radiographic test results obtained indications of incomplete penetration defects in the one-time repair and the concavity of internal porosity in 1 mm size is four times repair process. Micro structure observation, the number of particles of magnesium silicate (Mg2Si) the highest (11.2%) occurred in the four time process of repair. The average value of hardness at the highest HAZ is 134.33 HV at second repair process.

Key words : aluminium, GMAW welding process, repair, radiographic, microstructure, hardness