

A Study Of Weld Defects Of Gas Metal Arc Welding With Different Shielding Gasses

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Abstract

Welding is the preferred joining method of two or more parts into one piece and it has been developed depending on the combination of temperature and pressure. In Gas Metal Arc Welding (GMAW) process, shielding gas selection has a great influence on the quality and the strength of a welded joint. Shielding gas is very important and therefore any changes in gas mixture or flow parameter affects the arc transfer characteristics and resultant weld quality. Shielding gas systems is rather problematic as mixed cylinders are expensive and gas mixers are often inaccurate, therefore more efficient and alternative shielding gas technology is of interest. The aim of this study is to determine the weld defects by using different gasses which are Carbon Dioxide and Argon. The Visual Inspection, Dye Penetrant Inspection (DPI) and Ultrasonic Testing were used and the data from the inspection were analyzed and measured according to the ISO 5817 and ASTM E164/E165 standard. The findings defined the weld defects of the specimen of the Carbon Dioxide was less than the specimen of the Argon. The findings also identified the Carbon Dioxide shielding gas has a great potential to produce stronger weldment compared to Argon due to the oxidizing potential of CO₂ and CO₂ has a higher thermal conductivity level than Argon. © 2006-2017 Asian Research Publishing Network (ARPN). All rights reserved.