ABSTRACT

This study aims to analyse and compare the quality of welding results produced by two methods, namely Shielded Metal Arc Welding (SMAW) and Gas Metal Arc Welding (GMAW), on stainless steel materials. Stainless steel is widely used in various industrial sectors due to its corrosion resistance and good mechanical strength. Differences in welding methods can affect the physical and mechanical characteristics of the resulting welds. In this study, stainless steel samples were welded using both methods, and then tests were conducted to assess the tensile strength, corrosion resistance, and visual quality of the weld joints. From the analyses, it was observed that the quality of the welds obtained using the two techniques showed significantly different characteristics. The GMAW method produced more regular joints and had higher tensile strength values when compared to the SMAW method. These findings provide valuable information for the welding industry in selecting the most suitable method for stainless steel applications, as well as contributing to the development of more efficient and quality welding techniques.

Keywords : Shielded Metal Arc Welding (SMAW)*,* Gas Metal Arc Welding (GMAW)*, stainless steel, weld quality, tensile strength, corrosion resistance.*