

Dissimilar Welding between 2205 Duplex Stainless Steel and API X52 High Strength Low Alloy Steel

B. BELKESSA, D. Miroud, B. Cheniti, N. OUALI, M. Hakem, M. Djama

Abstract: This work purposes to investigate the microstructure and the mechanical behavior of dissimilar metals weld between 2205 duplex stainless steel (UNS 31803) and high strength low alloy steel API X52. The joining was produced by shielded metal arc welding process using two different filler metals, the duplex E2209 and austenitic E309 grade. The microstructures of the dissimilar welded joints have been investigated by optical microscopy, scanning electron microscopy and energy-dispersive spectroscopy (EDS). The EDS analysis performed at the API X52/weld metal interface showed an evident gradient of Cr and Ni between fusion and type II boundaries, where the highest hardness value was recorded.

Keywords : Dissimilar metals welding; 2205 duplex stainless steel; API X52 HSLA steel; Heat affected zone