

Pengaruh nitrogen sebagai campuran pada gas pelindung terhadap ketahanan korosi pitting pada pengelasan super duplex stainless steel menggunakan proses GTAW = Effect of nitrogen as a mixture of shielding gas on pitting corrosion resistance of super duplex stainless steel welding using GTAW process

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Abstrak

Steel dengan menggunakan proses pengelasan GTAW terhadap kemampuan tahan korosi pitting SDSS pada lingkungan dengan konsentrasi klorida yang tinggi. Pengelasan dilakukan terhadap empat spesimen dengan gas pelindung yang berbeda, yaitu Ar UHP, Ar 2 N 2, Ar 5 N 2 dan Ar 10 N 2. Hasil lasan pada ke-empat spesimen akan dilakukan pengamatan struktur makro dan mikro dengan mikroskop optik dan SEM-EDS Scanning Electron Microscopic-Energy Dispersive X-ray Spectroscopy , serta pengujian kekerasan, ferite content, pengujian korosi pitting berdasarkan ASTM G48-11 Method E dan potentiodynamic anodic polarization berdasarkan ASTM G5-13 untuk melihat pengaruh nitrogen terhadap struktur mikro dan kemampuan tahan korosi pitting SDSS.

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This thesis focuses on the effect of nitrogen on the shielding gases for the welding of super duplex stainless steel materials by using GTAW welding process against the pitting corrosion resistance of SDSS in environment with high chloride concentration. Welding was carried out on four specimens with different shielding gases, Ar UHP, Ar 2 N 2, Ar 5 N 2 and Ar 10 N 2. The weldments of the four specimens will be observed for macro and microstructures with optical microscope and SEM EDS Scanning Electron Microscopic Energy Dispersive X ray Spectroscopy , hardness testing, ferrite content, pitting corrosion testing based on ASTM G48 11 Method E and potentiodynamic anodic polarization based on ASTM G5 13 to see the effect of nitrogen on the microstructure and pitting resistance of SDSS.