

Effect of Solution Heat Treatment on Intergranular Corrosion Resistance of Welded Stainless Steel AISI 321

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Abstract : In this investigation, AISI321 steel after welding by Shielded Metal Arc Welding (SMAW) was solution heat treated in various temperatures and times, and then was sensitized. Results indicated, increasing of temperature in solution heat treatment raises the sensitization and creates the cavity structure in grain boundaries. Besides, in order to examine the effect of time on solution heat treatment, all samples were solution heat treated at different times and fixed temperature (1050°C). By increasing the time, more chrome carbides were created due to dissolution of delta ferrite phase and reproduce titanium carbides. Additionally, the best process for solution heat treatment for this steel was suggested.

Keywords : stainless steel, solution heat treatment, intergranular corrosion, DLEPR

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