A Comparative Study of Critical Pitting Temperature (CPT) of Super Duplex Stainless Steel S32707 in NaCl Solution

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In this study, the critical pitting temperature (CPT) of super duplex stainless steel UNS S32707 was compared using potentiodynamic, potentiostatic techniques, EIS and new electrochemical noise method. The results revealed that the CPT of S32707 is between 55–65 °C for potentiodynamic polarization and 64 °C for potentiostatic polarization, respectively. The pitting corrosion of S32707 occurs at about 65 °C for EIS method and the CPT value is between 58–65 °C for electrochemical noise method.

Keywords: critical pitting temperature, super duplex stainless steel UNS S32707, electrochemical methods, NaCl solution

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