INFLUENCE OF TEMPERATURE TO CORROSION RATE AND STEEL ELEMENT TO CRITICAL PITTING TEMPERATURE IN SEA WATER ENVIRONMENT

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Abstract

Target of this research is to study influence of temperature to corrosion rate and steel element to Critical Pitting Temperature in sea water environment. Temperature variation was used 0°C, 5°C, 15°C, 40°C, 60°C, and 80°C. After experiment of polarization of potentiodynamic at temperature 80°C and 0°C with Stainless steel 316 and Stainless steel 304, can be concluded that high temperature and high element value especially chromium, molybdenum and nitrogen will accelerate corrosion. By using PREN formula got resilience value of pitting corrosion at Stainless steel 304 and Stainless steel 316 are 19.0 and 24.2. pursuant to ASTM G-48A standart, value of CPT for Stainless steel 304 there is no data mentioning, While value of CPT for Stainless steel 316 is 15°C. This matter indicate that value of PREN high will boost up value of CPT.

Keyword: Corrosion rate, critical pitting temperature, pitting resistance equivalent number, 3.5% NaCl, AISI stainless steel 304 and AISI stainless steel 316, potentiodynamic