

감속 저항 및 비저항성 재료 용접부에서 가속 두께감소 분석

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Enhanced Thickness Reduction at the Bimetal Weld between Resistant and Non-resistant Material against FAC

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Key Words: Flow Accelerated Corrosion(유동가속부식), Bi-metal Weld(이종용접부), Entrance-like Effect(유사입구효과), Mass Transfer(물질전달)

Abstract : It has been observed that there seems to be accelerated corrosion of carbon steel immediately downstream of flow-accelerated corrosion(FAC) resistant materials. This type of damage has been observed at a number of nuclear power plant. An enhanced corrosion rate is experienced at the transition from the resistant to the non-resistant. This phenomenon is analogous to the entrance effect that occurs in heat transfer. This paper will demonstrate and testify the entrance-like effect by mass transfer and flow analysis. Various parameters such as flow velocity, corrosion track of downstream region and weld crown has been observed by the coupled analysis of mass transfer and flow. The entrance-like effect has been observed at the bimetal weld region between resistant and non-resistant material. Enhancement of FAC also investigated.

ASME N597-2 코드 직관 국부허용두께의 배경 파악

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Understanding of bases for the allowable local thickness of straight pipes in ASME N597-2 code

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Key Words: Structural integrity, ASME N597-2 code, Allowable local thickness

Abstract : It becomes a hot issue to assess the structural integrity of thin-walled pipes and pipe items. ASME Section XI Code Case N597-2 provides a criterion for acceptance. But the code has several limitations for application and sometimes gives too conservative or too non-conservative results. So works are in progress to modify and extend the code. For that purpose it is necessary to understand fully the technical bases of the code. In this paper technical bases are explained and the equations are derived for the allowable local thickness of straight pipes. And some features of the code are also examined.