Short Communication

Weld corrosion of GH3535 in molten (Li,Na,K)F

Yanli Wang¹, Shenghua Zhang^{2,*}, Chaoliu Zeng², and Weihua Li^{3,*}

¹ School of Chemistry and Chemical Engineering, Guangxi University, Nanning, 530004, P R China.

² School of Resources, Environment and Materials, Guangxi University, Nanning, 530004, P R China.

³ Institute of Metal Research, Chinese Academy of Sciences, Shenyang, 110016, P R China.

*E-mail: wyl15104008565@126.com

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The corrosion of structural materials in molten fluoride salts restricts the development of a molten salt reactor (MSR), with local galvanic corrosion of the weld joint being one of the major failure modes associated with the structural materials in the operating environment of an MSR. In this paper, in situ electrochemical measurements, combined with scanning electron microscopy (SEM/EDX) and metallographic microscope testing methods, are used to study the weld corrosion of GH3535 at 700 °C in molten (Li,Na,K)F. The results show that each part of the welding areas is in active dissolution state at the open circuit potential. The electrochemical behavior of the heat affected zone is similar to that of the GH3535 parent material. When the weld zone of the GH3535 is coupled with the parent alloy, galvanic corrosion occurs and the galvanic corrosion effect is larger than 1.

Keywords: weld corrosion, GH3535, molten (Li,Na,K)F.

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