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Chloride-Induced Stress Corrosion Cracking of Used Nuclear Fuel Welded Stainless Steel Canisters: A Review

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ABSTRACT

It has been shown the salt deposition conditions in coastal areas result in chloride-induced stress corrosion cracking (CISCC) on thestainless steels used to contain nuclear fuel. The present study conducts a critical review of the realistic environmental conditionsin-service canisters are subjected to, including the presence of surface temperature variables, surface relative humidity, surface deposits and tensile stresses that are caused by welding processes. The CISCC related experimental results of the canister materials are also reviewed to evaluate the potential occurrence of CISCC.

KEY WORDS:

Welded stainless steel canister; Stress corrosion cracking; Tensile Stress; Used nuclear fuel

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