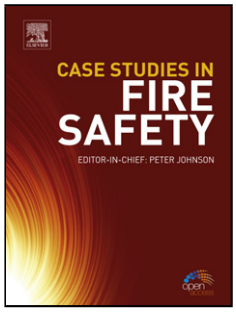

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Growth kinetics of metastable pits on sputtered nanocrystalline stainless steel

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Research Highlights of this work are listed as follows:

- Pitting current on sputtered NCss keeps constant during metastable growth.
- Remnant passive film over pit mouth do not undergo continuous rupture.
- Diffusion of metal cations away from the pit is greatly restricted.
- Transition from metastable to stable pit on sputtered NCss is greatly inhibited.

Abstract

The development of metastable pit on sputtered nanocrystalline stainless steel was investigated in 3.5 wt.% NaCl solution. Its current transient is distinct from that of conventional coarse-grained stainless steel. The remnant thin membrane passive film over the pit mouth was found to act as a diffusion barrier, however, it do not

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