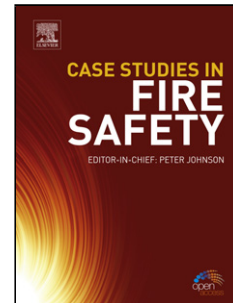


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Spallation resistance of oxide scales on Alloy 617 enhanced by boron addition

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Highlights

- Addition of 200 ppm boron to Alloy 617 significantly enhances the spallation resistance of oxide scales.
- B segregation at grain boundaries of external Cr_2O_3 scales was detected by atom probe tomography.
- B segregation reduces intergranular cracking and spallation of Cr_2O_3 scales.

Abstract

We report on the effects of B additions to Alloy 617 on its high-temperature oxidation behavior and on the spallation of oxide scales. Alloy 617 and a B-added derivative (Alloy 617B) were oxidized at 1050 °C in air and comparatively studied. Cr_2O_3 scales formed on both alloys with a spinel phase and a Ti-

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