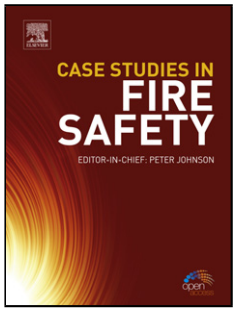

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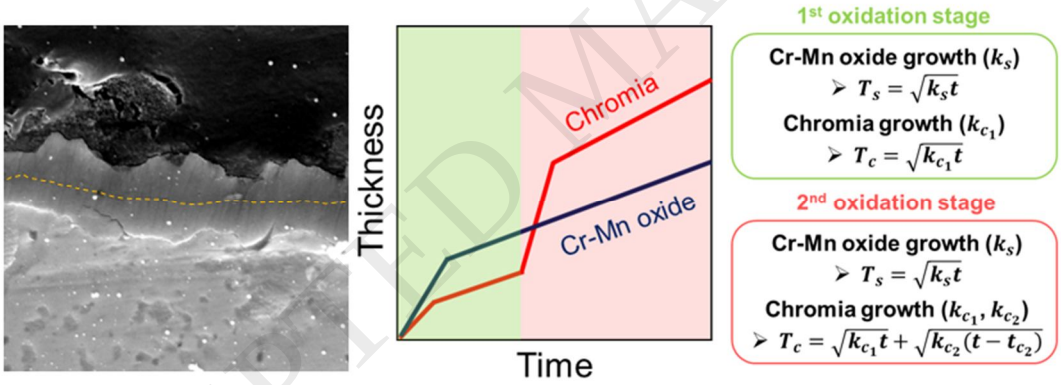
Graphical abstract



Highlights

- The oxidation mechanism of Crofer 22 APU was investigated at high temperatures.
- The growth rate of chromia increased abruptly due to oxygen that penetrates the Cr-Mn oxide.
- Two-step thermal behavior for the growth of the scale was proposed.