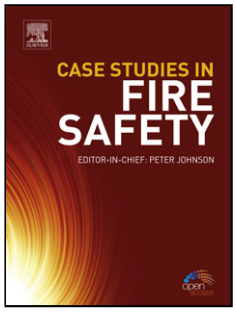

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The Effect of Cold-Rolling on the Microstructure and Corrosion Behaviour of 316L Alloy in FLiNaK Molten Salt

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3-5 points provide readers with the main findings of the article

Each highlight is 85 characters or less

No acronyms or abbreviations

Highlights:

- Cold-rolling leads to increased amounts of grain boundaries and dislocations.
- Cold-rolling increases the susceptibly of 316L alloy to corrosion in molten salt.
- Grain boundaries and dislocations govern corrosion resistance.
- Alloying elements diffuse to grain boundaries and dislocations.
- Alloying elements react with molten salt to form Cr, Mo corrosion products.

Abstract

The effect of cold-rolling on the microstructure and molten salt corrosion behaviour of 316L alloy was investigated. Corrosion tests were performed in FLiNaK salt at 600 ^{o}C for 300h. The present results indicate that cold-rolling leads to enhanced corrosion in molten salt despite its beneficial effect on the alloys mechanical properties. It is shown that the corrosion resistance of cold-rolled 316L alloy is largely governed by the presence of high-angle grain boundaries (HAGBs) and geometrically-necessary dislocations (GNDs). Exacerbated corrosion is thus