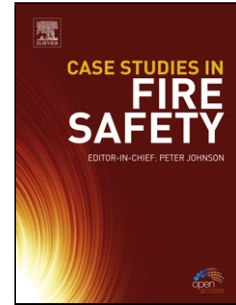


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# The mechanisms of corrosion inhibition of hot-dip galvanized steel by vanadyl oxalate: A galvanic corrosion investigation supported by XPS

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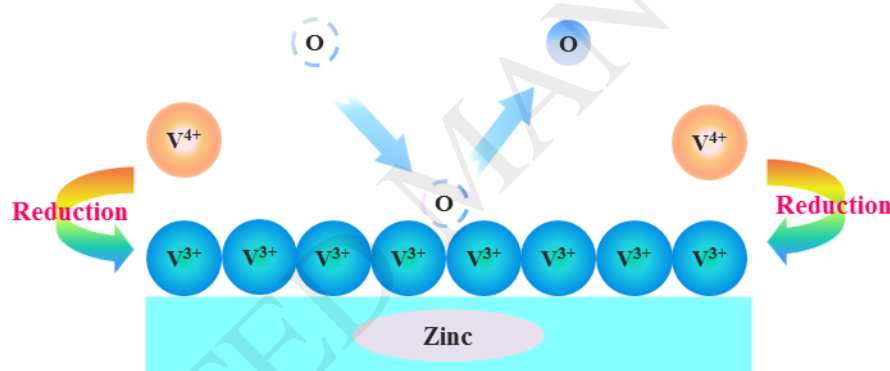
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## Graphical abstract



## Highlights

- Galvanic corrosion approach investigates V(IV) effects on corrosion inhibition of HDG.
- Segregation of electrode reactions was achieved using split cell technique.
- V(IV) injection to the cathode had significant effects on galvanic currents.
- V(IV) inhibits ORR by mechanisms involving V(IV) reduction to V(III).

## Abstract

The mechanisms of corrosion inhibition of hot-dip galvanized steel by vanadyl oxalate were studied using galvanic corrosion approach and XPS. The partial separation of electrode reactions was achieved using a split cell design. Injection of vanadyl oxalate solution to the cathode side of split cells significantly reduced the

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