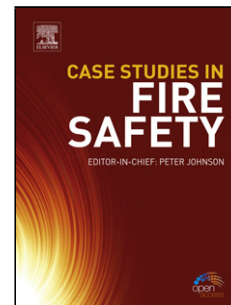


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Influence of biomacromolecule DNA corrosion inhibitor on carbon steel

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Highlights

- Biomacromolecule DNA was used as a mixed-type corrosion inhibitor.
- The corrosion inhibition efficiency of DNA on reached 91.9% in 1 M HCl.
- Analysis of adsorption mechanism with Langmuir isotherm, FT-IR and XPS.
- Structural-property relationship of inhibitors revealed by quantum chemical calculation.

Abstract:

The biological macromolecule DNA was used as green corrosion inhibitor to protect X80 carbon steel against 1M HCl solution, and the corrosion behavior was systematically investigated by weight loss, electrochemical measurements, FTIR, and quantum chemistry calculation et al. The results showed that the maximum inhibition efficiency of compound DNA reached 91.9%. It was found that the chemisorption of DNA inhibitor on carbon steel surface resulted from single-molecular-layer self-assembly. The theoretical calculation verified the relationship between

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