

Documents

El-Nabey, B.A.Abd, El-Awady, A.A., Aziz, S.G. **Structural effects and mechanism of the inhibition of acid corrosion of steel by some dithiocarbamate derivatives** (1991) *Corrosion Prevention and Control*, 38 (3), pp. 68-74. Cited 6 times.

King Abdulaziz Univ, Jeddah, Saudi Arabia

Abstract

The study of the inhibition efficiency of related dithiocarbamates was undertaken using gasometry, mass loss and potentio-dynamic polarization methods. The compounds studied have the general formula RR'NCSS-Na, where R = H, CH3 or C2H2 and R' = CH3, C2H5, C4H7, or C6H5. The studies showed that the compounds act as good inhibitors for the acid dissolution of steel in 1M H2SO4. The protection efficiency of the mono-substituted compounds increases as the electron density at the functional group and the bulk of the substituents increase. Polarization measurements indicated that these compounds act as mixed-type inhibitors. This is interpreted to mean that the compounds retard the rate of hydrogen evolution on the metal by affecting the mechanism of the reaction. Additional evidence for a change over in mechanism was also obtained from temperature studies of the inhibition process at five temperatures ranging from $30-50^{\circ}$ C. It was observed that the enthalpy of activation increased by a factor of 2 to 3 in the presence of the inhibitors. In addition, the direction and sign of the entropy of activation supports the same principle.

Document Type: Article Source: Scopus

About Scopus What is Scopus Content coverage What do users think Latest Tutorials Contact and Support Contact and support Live Chat About Elsevier About Elsevier About SciVerse About SciVal Terms and Conditions Privacy Policy



Copyright © 2011 Elsevier B.V. All rights reserved. SciVerse ® is a registered trademark of Elsevier Properties S.A., used under license. Scopus ® is a registered trademark of Elsevier B.V.