## 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.

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**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°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.

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