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Inhibition Studies of a Few Organic Compounds and Their Condensation Products on the Corrosion of Zinc in Hydrochloric Acid Medium

Shanthamma Kampalappa RAJAPPA,

Thimmappa V. VENKATESHA

Kuvempu University, Department of P.G. Studies and Research in Chemistry,
Jnana Sahyadri Shankaraghatta -577 451, INDIA.

e-mail: university@sancharnet.in

 [Keywords](#)
[Authors](#)



chem@tubitak.gov.tr

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Abstract: The corrosive behavior of zinc in HCl solution containing various concentrations of glutaraldehyde GTD, glycine GLN, methionine MTN, and their condensation products formed between GTD + GLN (CP1) and GTD + MTN (CP2) was investigated. The corrosion-inhibitive action of these compounds on zinc metal was studied using chemical and electrochemical methods. The results showed that the compound CP2 is the best inhibitor and that its inhibition efficiency reaches 92.56% at 10^{-2} M in 0.05 M acid concentration. As an inhibitor, CP2 was found to have a predominant cathodic effect and its adsorption was confirmed with the Temkin isotherm. The effect of temperature on the corrosion of zinc was investigated by the weight-loss method. The morphology of the corroded surface was studied by SEM technique to obtain information about the adsorption of inhibitor molecules on the zinc surface.

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