ABSTRACT

The inhibition action of the imidazole derivative on the corrosion of mild steel in 0.5 M Sulphuric acid was investigated by weight loss, polarization, Impedance and SEM. The PZC of mild steel was studied by AC impedance method. The polarization experiment revealed that IDZ is of mixed–type but slightly anodic control. Weight loss results obtained revealed that the imidazoline derivatives performed excellently as corrosion inhibitor with efficiency above 70% at 20ppm at 303 K. The optimum period of inhibition for IDZ was determined by weight loss studies. Its adsorption on mild steel obeys Tempkin isotherm. Quantum chemical parameters and Mulliken charge densities on the optimized structure of imidazoline derivative were calculated using GAUSSIAN 09 with B3LYP / 6-31G (d,p) basis set.