

## 2,4-Dihydrazino-6-Morpholino-1,3,5-Triazine (DHMT) and 2,4-Dihydrazino-6-Piperidino-1,3,5-Triazine (DHPT) as Promising Corrosion Inhibitors of Steel in Acidic Media

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The effect of the two compounds 2,4-dihydrazino-6-morpholino-1,3,5-Triazine (DHMT) and 2,4-dihydrazino-6-piperidino-1,3,5-triazine (DHPT) for corrosion inhibition of steel in hydrochloric acid solution was investigated using electrochemical techniques. DHMT and DHPT were prepared from cyanuric chloride and completely characterized by IR, <sup>1</sup>H NMR, <sup>13</sup>C NMR, and elemental analysis. The electrochemical results indicated good protection performance of the both tested materials towards the corrosion of steel in the chloride-containing environment. Polarization data indicated that the tested DHMT and DHPT labeled as mixed type inhibitors. Nyquist plots composed of a capacitive loop and its diameter increased with increasing inhibitor concentration. The calculated values of IE from EIS method follow the same trend as those obtained from the polarization results. The results indicated that DHMT and DHPT affects the electrochemical properties of steel surface and promoted an insulating layer and strong modifications in the impedance response. At high concentration (225 ppm and 150 ppm) both showed the same performance, while at low concentration (25 ppm and 75 ppm) DHMT show better performance than DHPT. This behaves due to the presence of the oxygen promotes a better film coating on steel.

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**Keywords:** Hydrazino-*s*-triazine, corrosion inhibitors, potentiodynamics polarizatyon, EIS.

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