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Adsorption and Performance of Ammonium-Based Ionic liquids as Corrosion Inhibitors of Steel

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ABSTRACT

Methyltrioctylammonium methyl sulfate (TMA) and trimethyltetradecylammonium methyl sulfate (TTA) were synthesized as novel quaternary-ammonium-derived ionic liquids (ILs) in order to be evaluated as corrosion inhibitors (CIs) of API-X52 steel in 1 M HCl. Electrochemical techniques were used to evaluate the anticorrosive effect, finding that TMA and TTA worked as mixed-type CIs and inhibited the corrosion process depending on the temperature, immersion time and IL concentration, being remarkably effective at 40 °C, which was attributed to the high thermal stability of the methyl sulfate anions. X-ray

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