Electronic Supporting Information

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Comprehensive investigations on the action of cationic terthiophene and bithiophene as corrosion inhibitors: Experimental and theoretical studies

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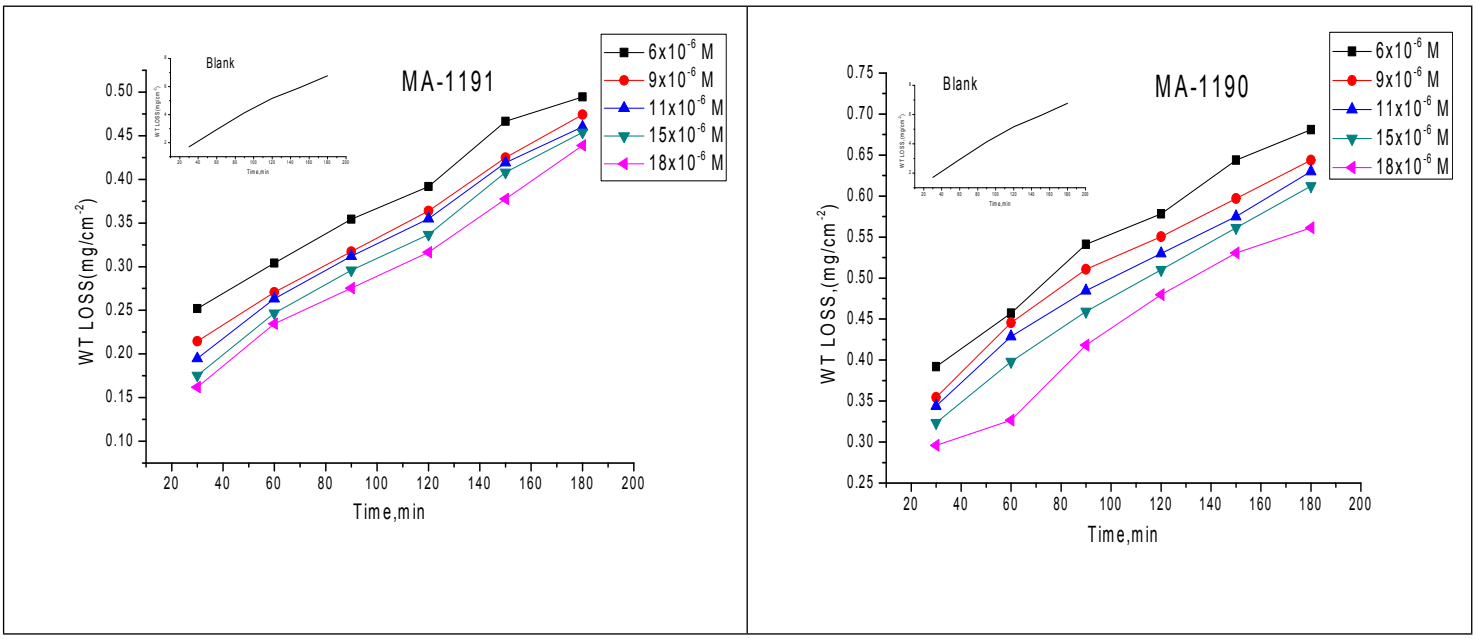


Fig. S1. WL-time curves for the dissolution of CS in 1.0 M HCl without and with various concentrations of MA-1191 (left) and MA-1190 (right) at 25^{O}C.

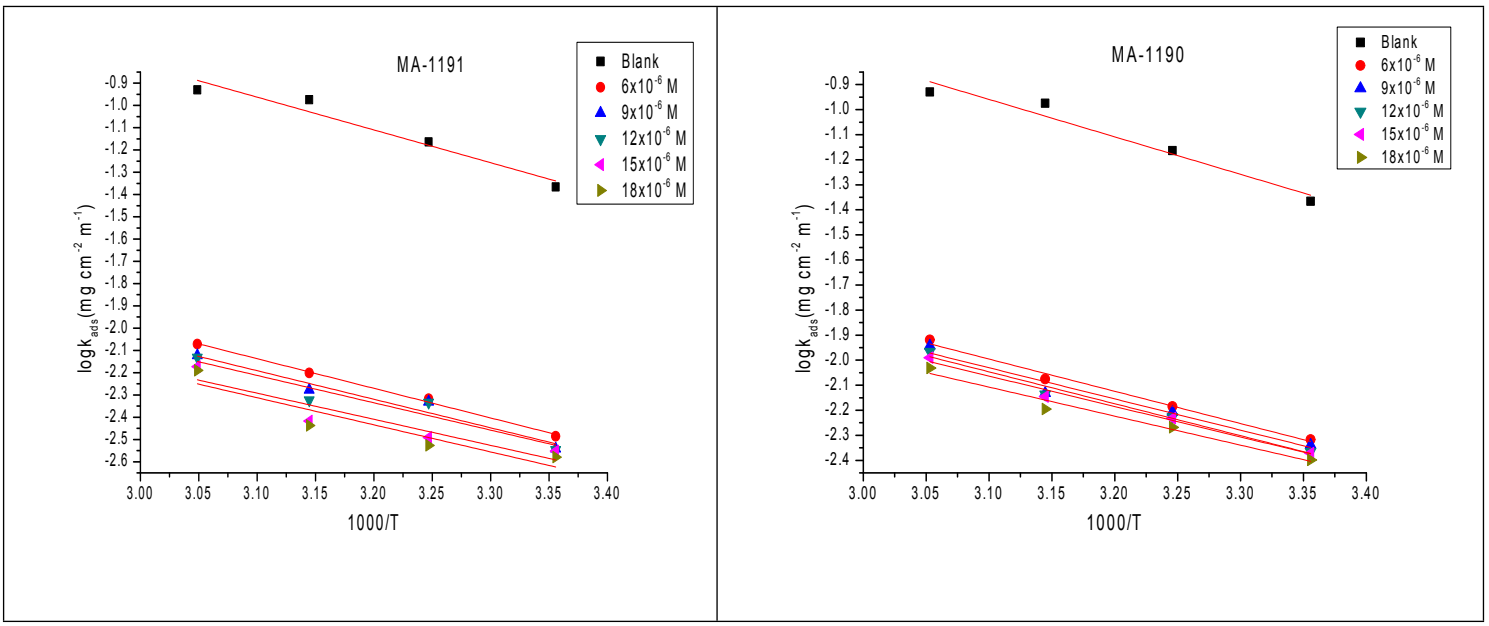


Fig. S2. Arrhenius plots (log k_{corr} vs 1/T) for CS in 1.0 M HCl in absence and presence of concentration of (MA-1111, MA-1112).

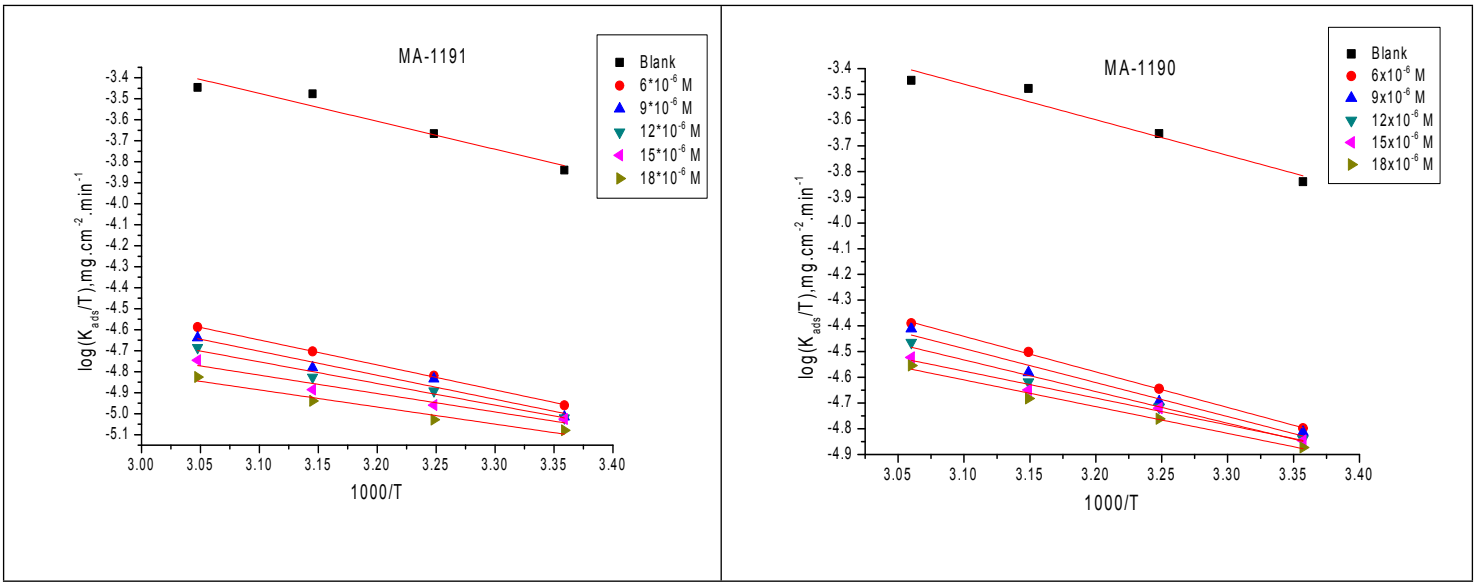


Fig. 3. Transition state plots (log k_{corr} vs 1/T) for carbon steel in 1.0 M HCl in absence and presence of different concentration of (MA-1191, MA-1190).

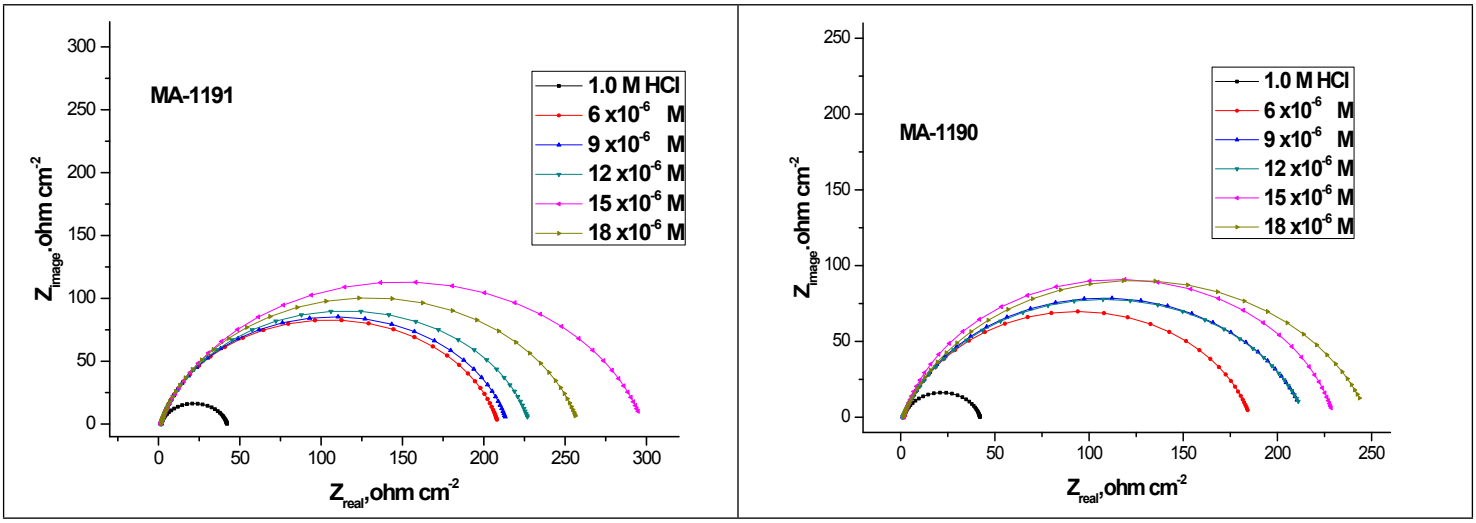


Fig. 4. Nyquist plots for CS in 1.0 M HCl in without and with different concentrations of (MA-1191, MA-1190) at 25°C.

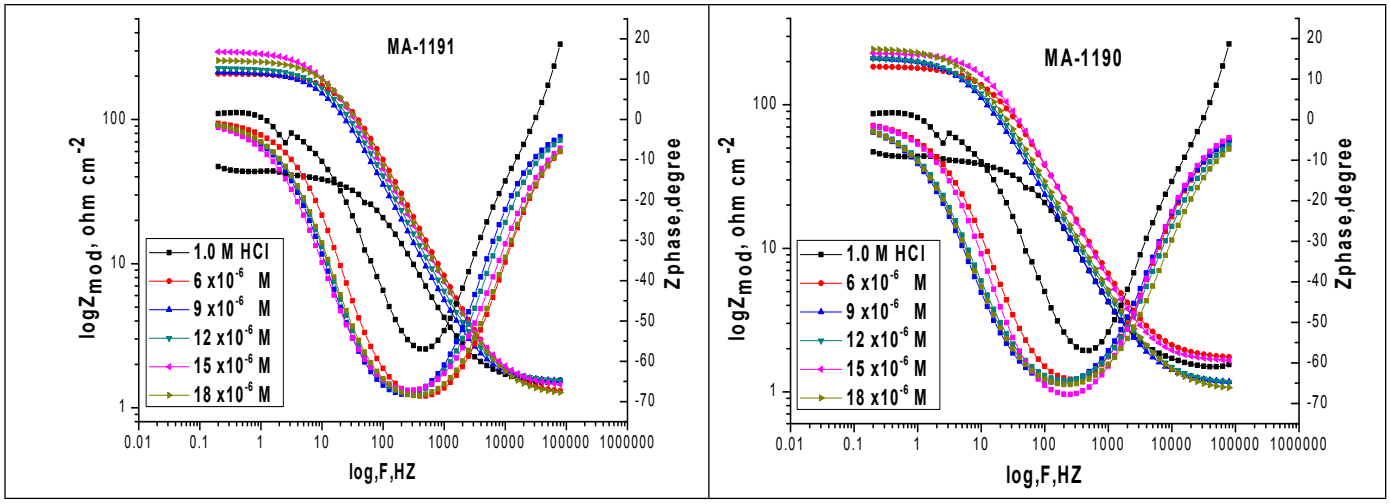
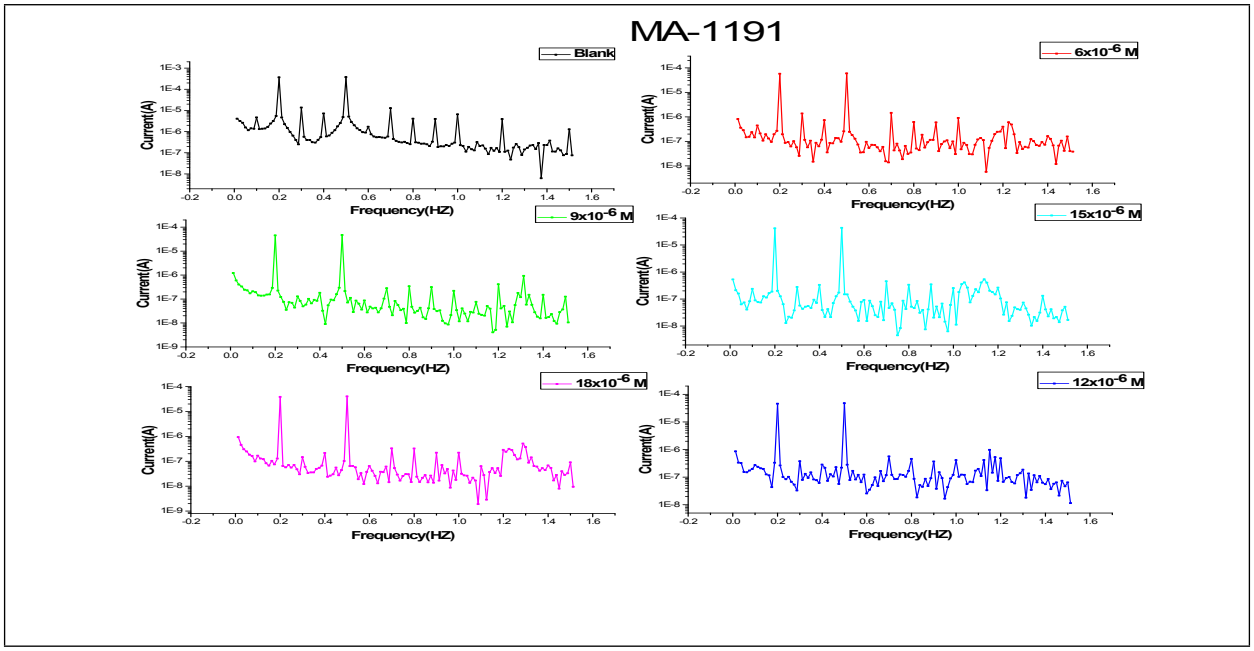


Fig. S5. Bode plots for CS in 1.0 M HCl in without and with different concentrations of (MA-1191, MA-1190) at 25°C.



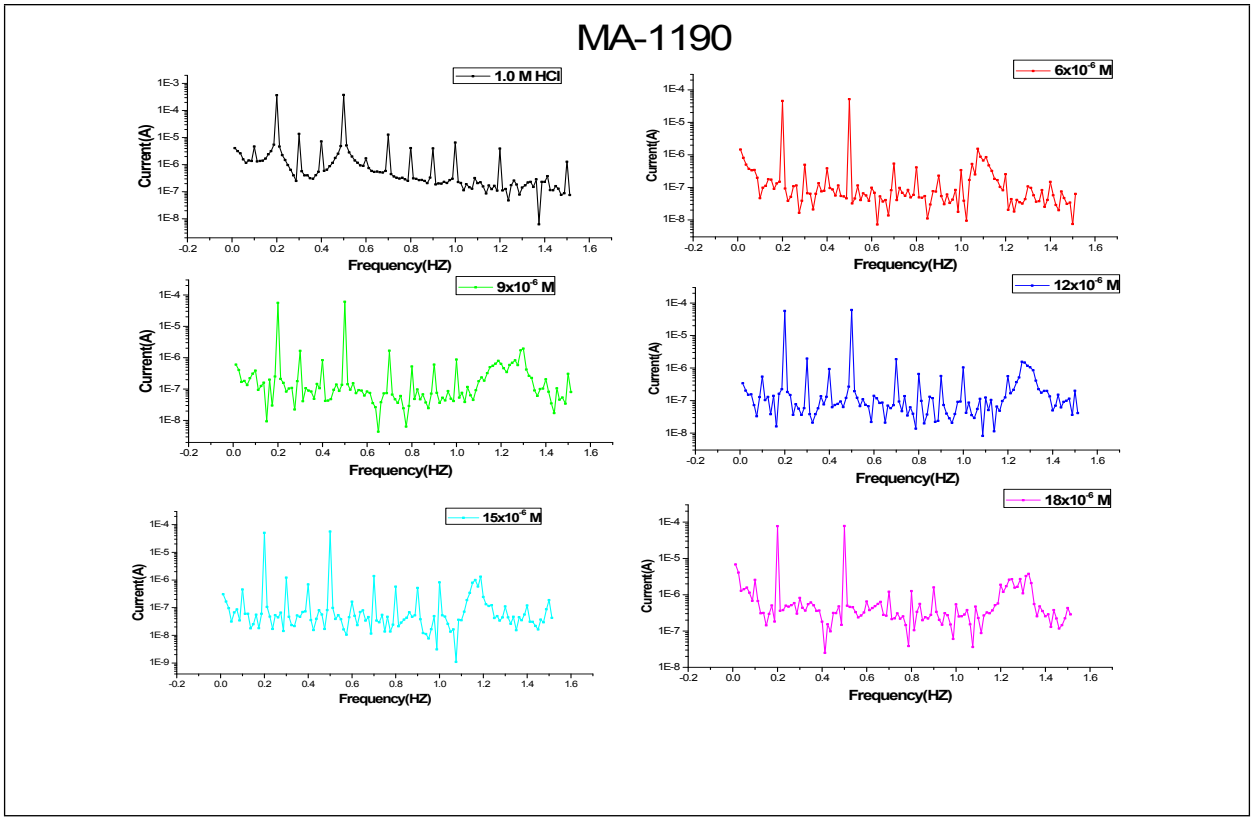


Fig. S6. EFM spectra for corrosion of CS in 1.0 M HCl with out and with various concentrations of MA-1191 and MA-1190 at 25°C.

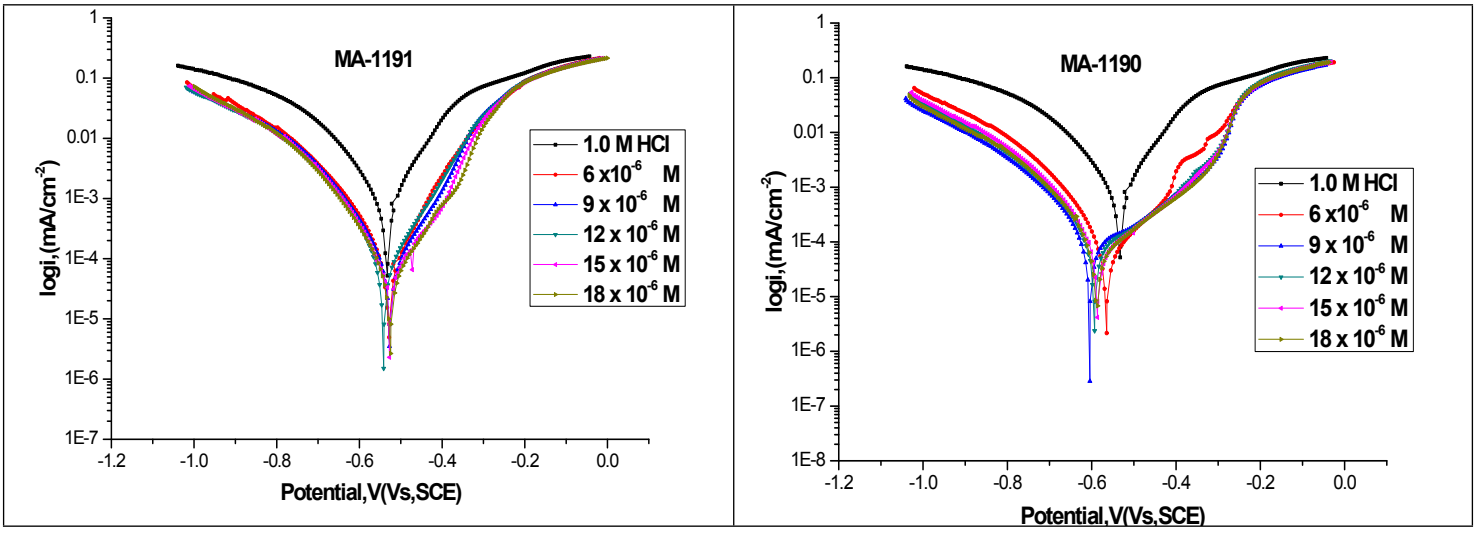


Fig. S7. Polarization curves for CS in 1.0 M HCl without and with various concentrations of (MA-1191, MA-1190) at 25°C.

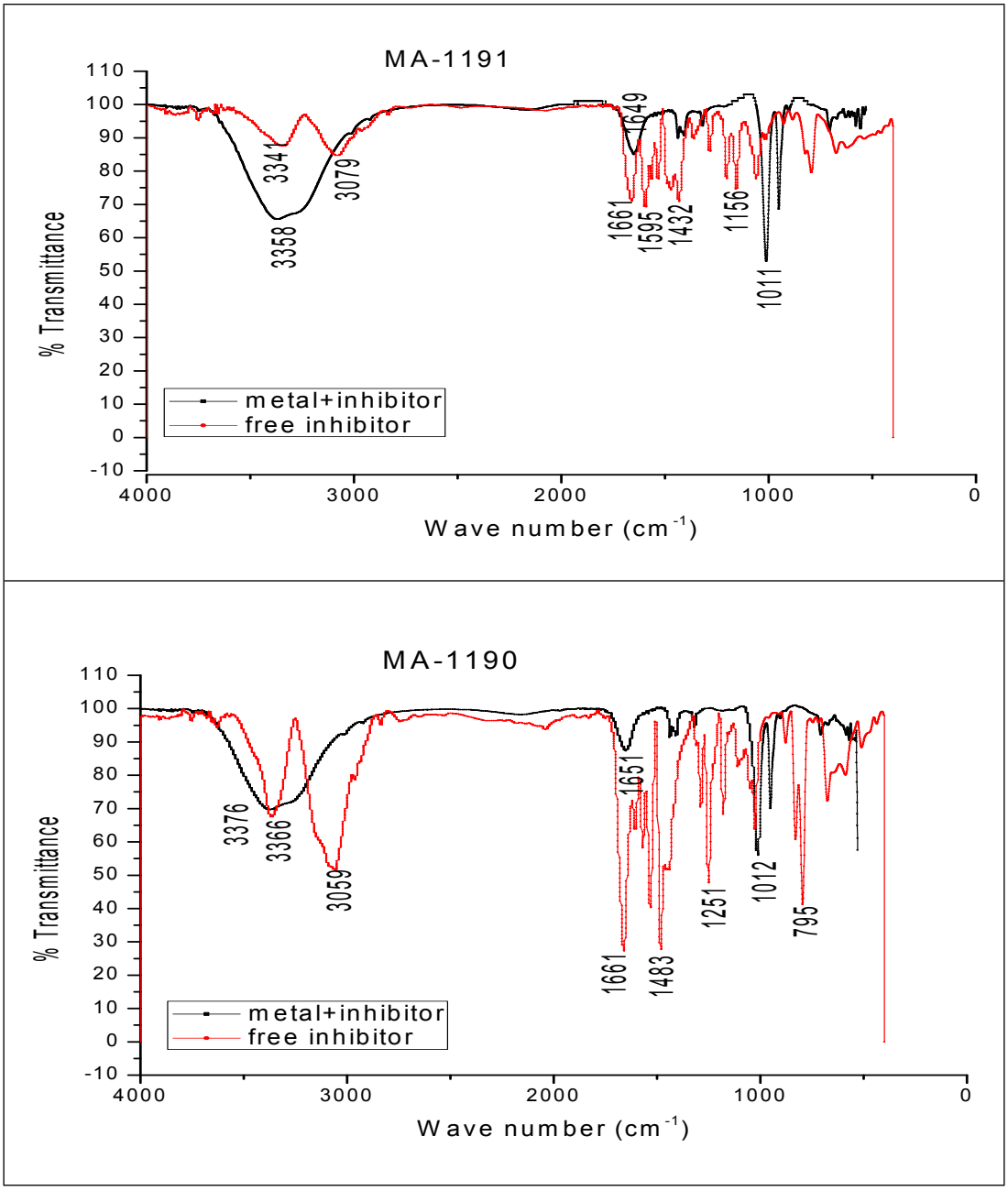
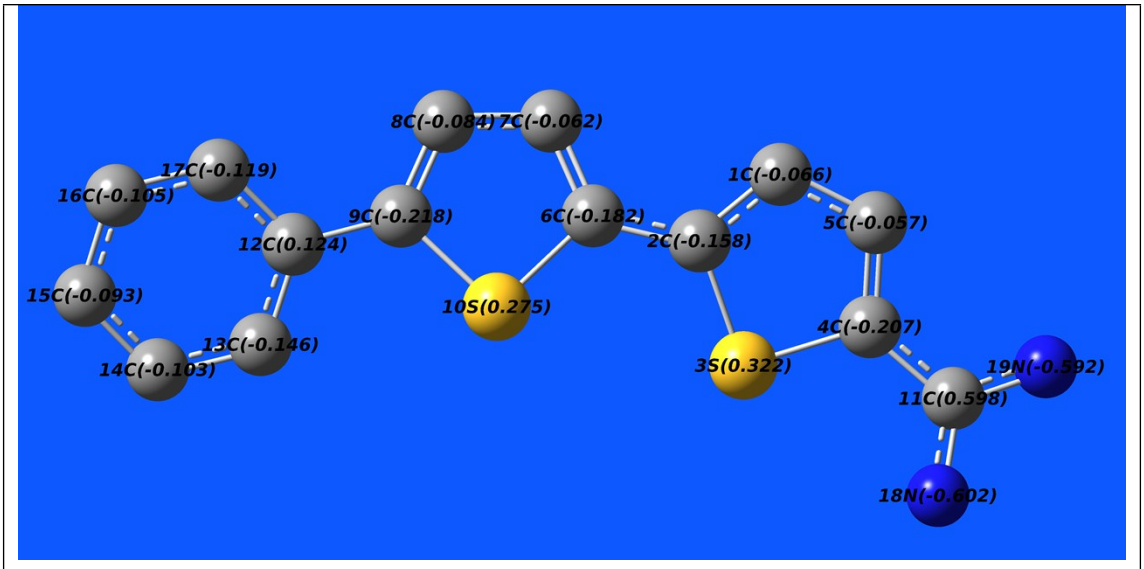
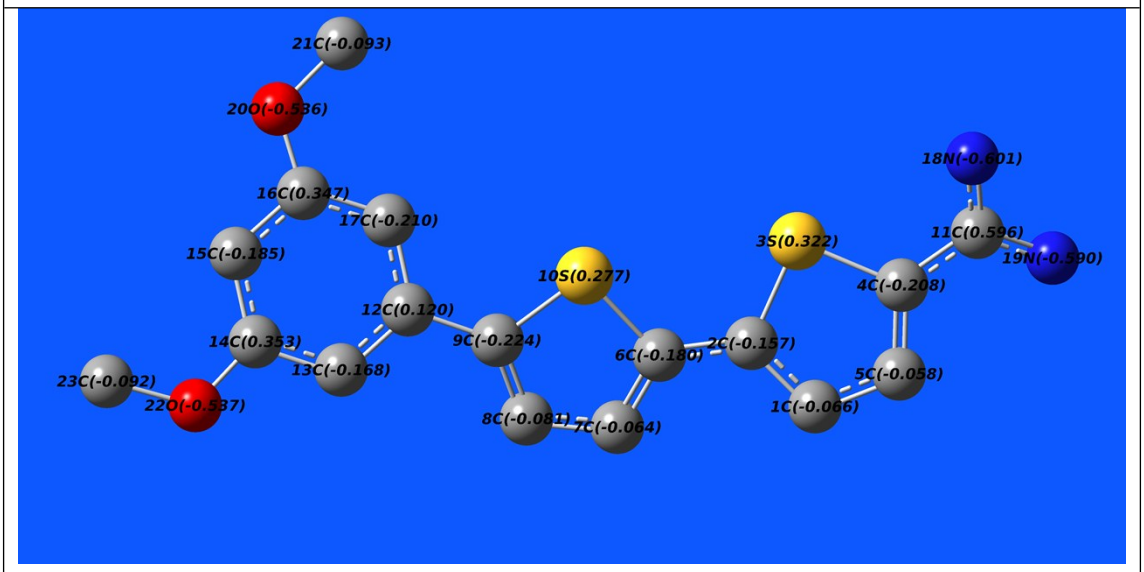


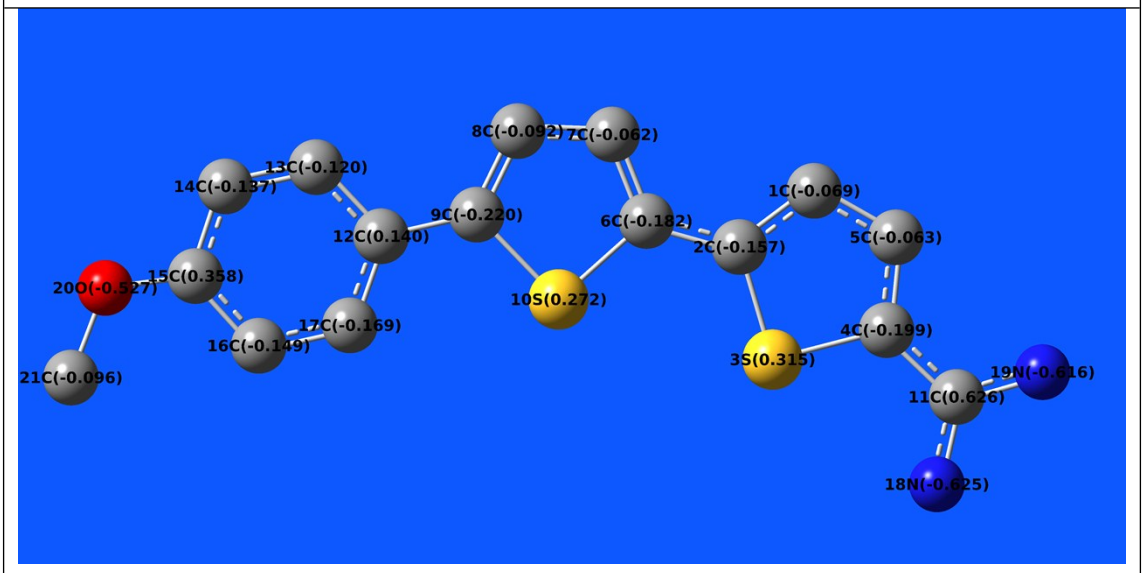
Fig. S8. shows FT-IR spectra for free inhibitors and inhibitors with metal for (MA-1191, MA-1190) inhibitors.



MA-1111



MA-1191



MA-1190

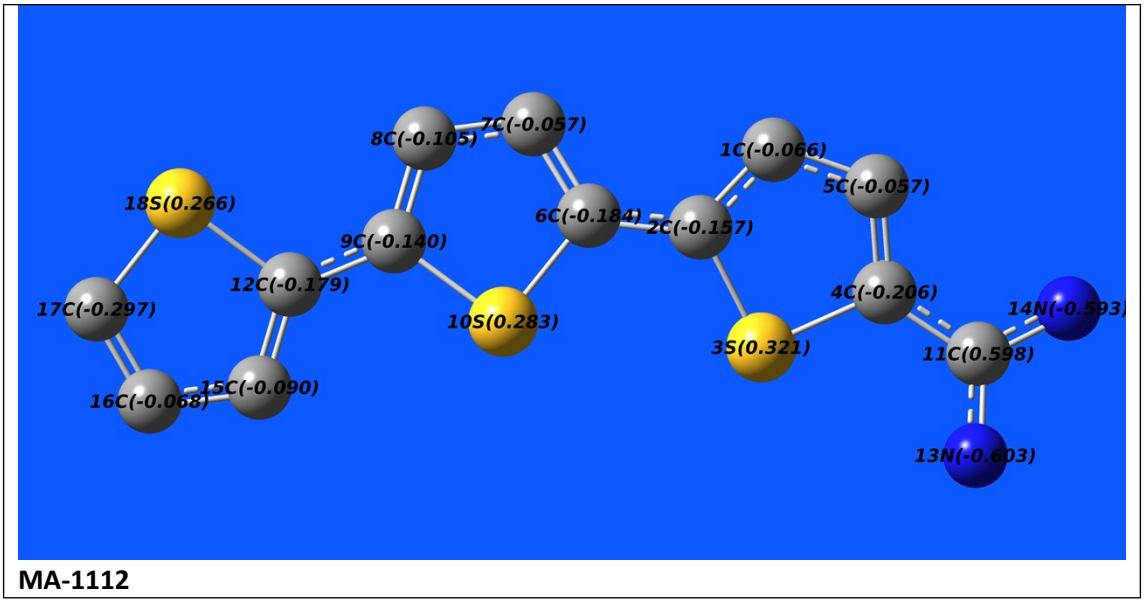


Fig. S9. Mulliken atomic charges for the investigated inhibitors.