SUPPORTING INFORMATION FOR

**Effects of Resin I on the Catalytic Oxidation of *n*-C$_7$ Asphaltenes in the Presence of**

**Silica-Based Nanoparticles**

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**Prediction of the Amount of *n*-C$_7$ Asphaltenes Adsorbed.**

Prediction of the amount of *n*-C$_7$ asphaltenes according to the procedure described in our previous work. A good prediction is expected to result in a linear plot of the amount adsorbed predicted ($q_{predicted}$) vs. the experimentally observed amount adsorbed (qexperimental). A good prediciton imply that the slope (*m*) and the intercept (*b*) of the equation of a straight line should be equal to 1.0 and 0.0, with a R$^2$ = 1.0. In this case, amount of *n*-C$_7$ asphaltenes adsorbed in absence of resins I was predicted from adsorption at A:R ratios of 3:7 and 7:3.

Figure S1 shows Linear plots of $q_{predicted}$ vs $q_{experimental}$ for the individual adsorption of *n*-C$_7$ asphaltenes and *n*-C$_7$ asphaltenes in the presence of resin I and for different A:R ratios over

SNi1Pd1 nanoparticles. Also, Table S1 shows the estimated slope and intercept of the straight-line equation together with the corresponding values of $R^2$.

Figure S1 shows that there is an excellent prediction of the $n$-$C_7$ asphaltenes adsorbed in absence of resins I was from the experimental adsorption at A:R ratios of 3:7 and 7:3. This is corroborated by values of $m$ and $b$ that have an estimated deviation less than 5%.
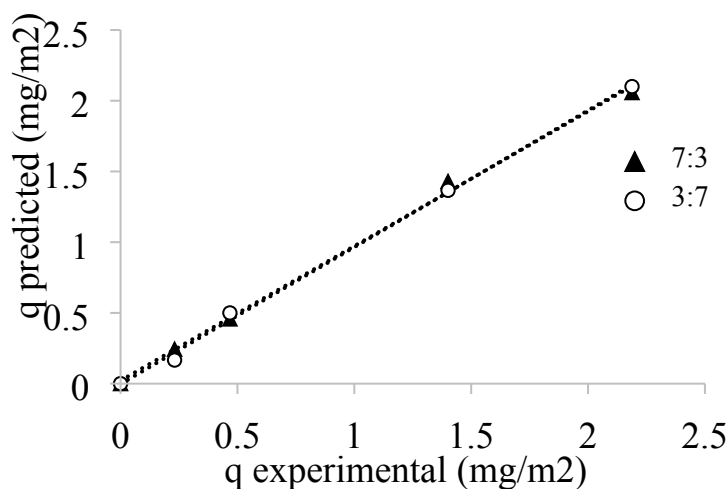


**Figure S1.** Linear plots of $q_{predicted}$ vs $q_{experimental}$ for the individual adsorption of $n$-$C_7$ asphaltenes and $n$-$C_7$ asphaltenes in the presence of resin I and for different A:R ratios over SNi1Pd1 nanoparticles.

**Table S1.** Estimated Slope and Intercept of the Linear plot of $q_{predicted}$ vs $q_{experimental}$ for the Prediction of the Amount of $n$-$C_7$ Asphaltenes Adsorbed over SNi1Pd1 nanoparticles in the Absence and the Presence of Resin I

| A:R ratio | $m$ | $b$ | $R^2$ |
|:---:|:---:|:---:|:---:|
| 7:3 | 0.96 | 0.021 | 0.99 |
| 3:7 | 0.97 | 0.002 | 0.99 |