Supporting Information

Evidence of the dependence between deoxygenation activity and metal-support interface

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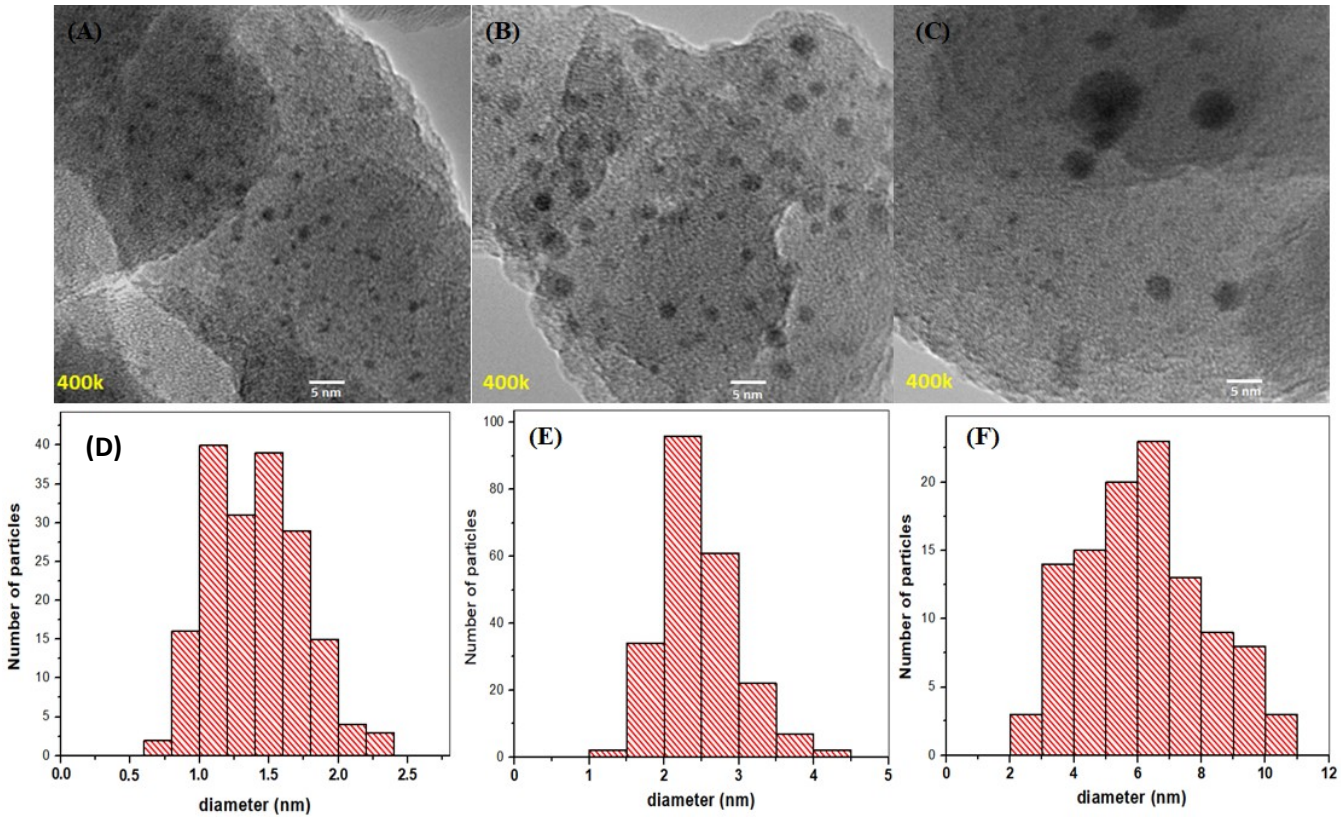


Figure S1. TEM images for the Pt supported on SiO_2 catalysts: (A) 1%Pt/SiO_2 (A); (B) 1%Pt/SiO_2 (B); (C) 1%Pt/SiO_2 (C); and size distribution histograms for (D) 1%Pt/SiO_2 (A); (E) 1%Pt/SiO_2 (B); (F) 1%Pt/SiO_2 (C).

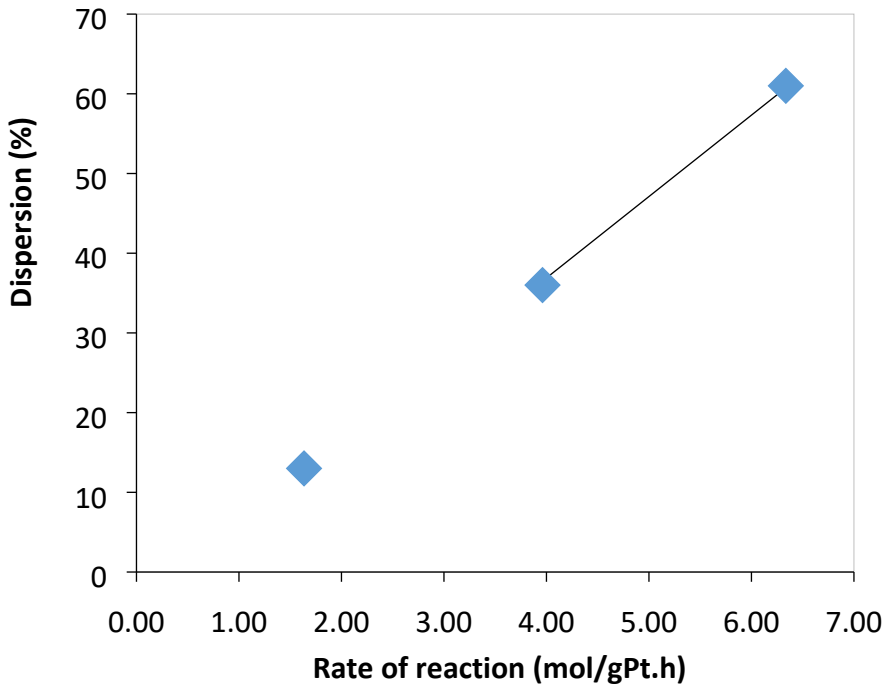


Figure S2. Metallic dispersion of Pt/SiO_2 catalysts previously measured by TEM as a function of rate of dehydrogenation reaction of cyclohexane.

Table S1. Reaction rate and products distribution for HDO of phenol over the Pt supported on SiO_2 catalysts ($T_{reduction}$ = 573 K, $T_{reaction}$ = 573 K, 1 atm, 5 min of TOS).

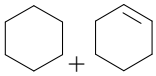
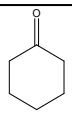
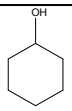
Catalyst	Conversion (%)	Rate of HDO (mmol $g_{Pt}^{-1}min^{-1}$)	TOF of HDO (min^{-1})	Selectivity (%)			
							
1%Pt/SiO_2 (A)	7.8	8.22	2.63	7.7	0.6	86.5	5.3
1%Pt/SiO_2 (B)	17.3	7.47	4.05	10.8	0.5	78.7	10.0
1%Pt/SiO_2 (C)	8.3	1.89	2.83	7.3	0.0	81.5	11.3

Table S2. Reaction rate and products distribution for HDO of anisole over the Pt supported on SiO_2 catalysts ($T_{reduction}$ = 573 K, $T_{reaction}$ = 573 K, 1 atm, 5 min of TOS).

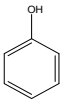
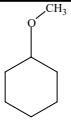
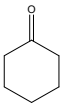
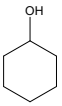
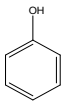
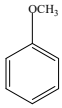
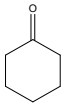
Catalyst	Conversion (%)	Rate of HDO (mmol/g_{Pt}.min)	TOF of HDO (min^{-1})	Selectivity (%)							
										CH_4	CH_3OH
1%Pt/SiO_2 (A)	12.6	8.16	2.61	4.7	0.0	36.7	1.2	7.9	1.7	44.8	2.8
1%Pt/SiO_2 (B)	11.6	7.12	3.86	3.8	0.0	40.0	1.0	6.6	1.1	44.2	3.2
1%Pt/SiO_2 (C)	13.3	4.93	11.57	7.5	0.0	36.6	0.8	5.6	1.5	41.6	6.7

Table S3. Reaction rate and products distribution for HDO of guaiacol over the Pt supported on SiO_2 catalysts ($T_{reduction}$ = 573 K, $T_{reaction}$ = 573 K, 1 atm, 5 min of TOS).

Catalyst	Conversion (%)	Rate of HDO (mmol/g_{Pt}.min)	TOF of HDO (min^{-1})	Selectivity (%)							
									CH_4	CH_3OH	Others*
1%Pt/SiO_2 (A)	14.3	0.42	0.13	0.5	0.0	22.3	0.5	2.2	49.5	11.5	13.5
1%Pt/SiO_2 (B)	12.9	0.35	0.19	0.4	0.0	18.4	0.3	1.5	58.7	8.6	12.1
1%Pt/SiO_2 (C)	13.2	0.09	0.13	0.2	0.0	16.2	0.2	1.0	66.3	5.4	10.7

*Others compounds include 2-methoxycyclohexanone and 2-methoxycyclohexanol.

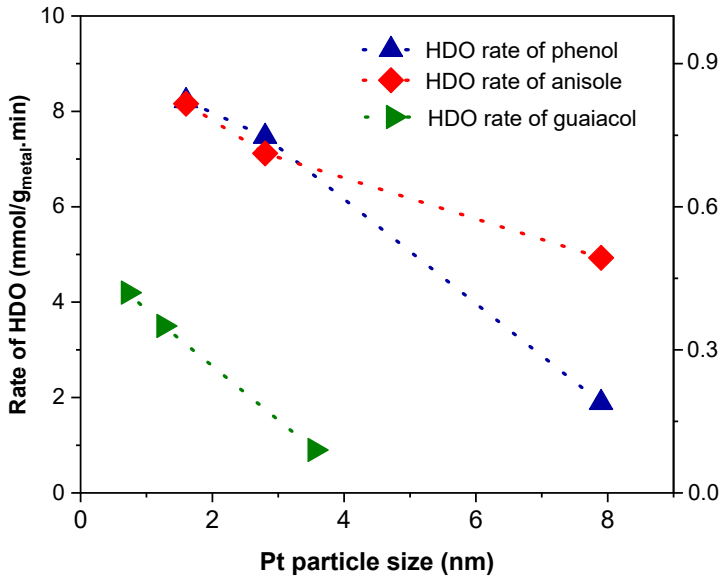


Figure S3. HDO reaction rate of the different molecules as a function of Pt particle size on the Pt/SiO_2 catalysts.