Supporting Information

The Role of Surface Chemistry of Ceria Surfaces on the Silicate Adsorption

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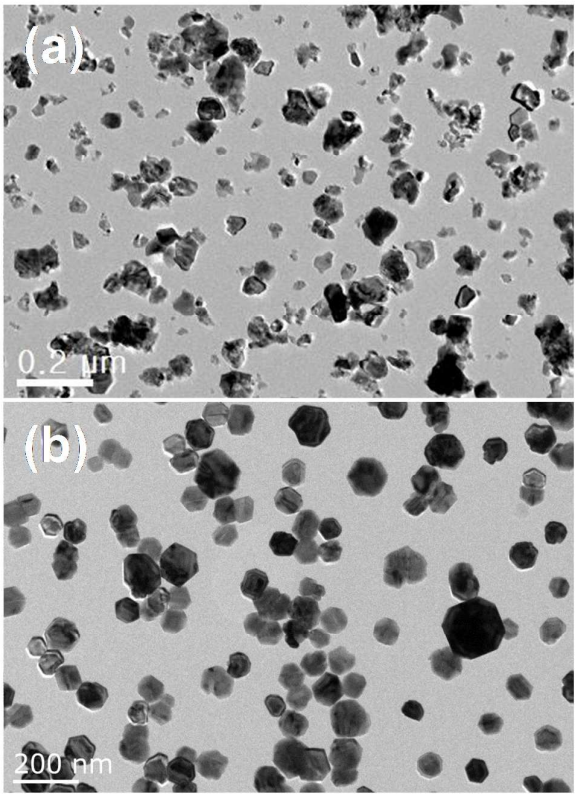

Figure S1. TEM images of (a) calcined ceria and (b) solution-grown ceria.

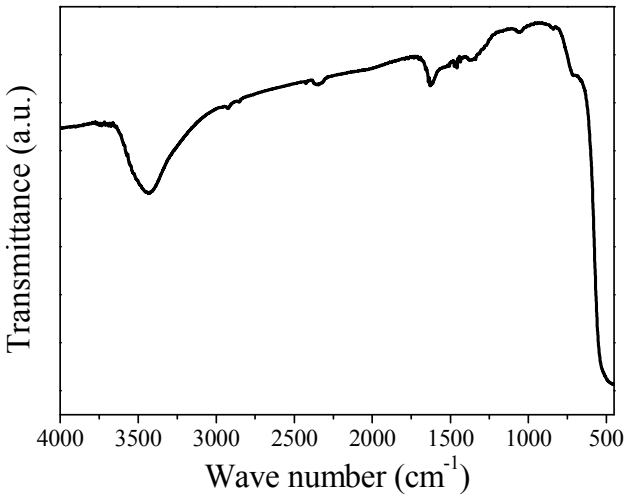

Figure S2. The FT-IR spectra of calcined ceria.

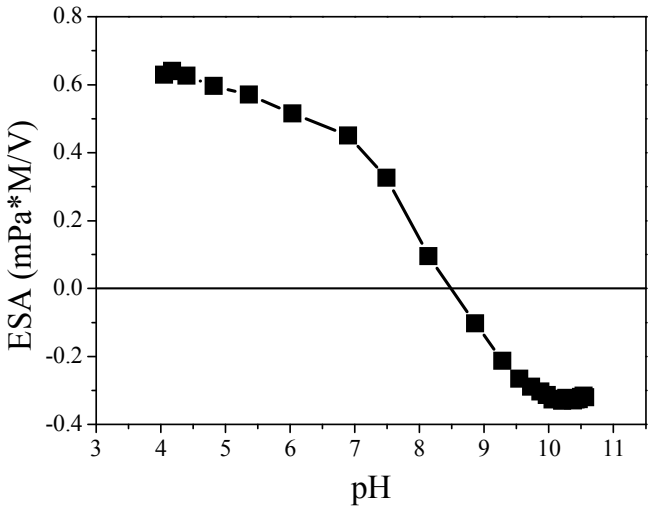

Figure S3. Electrokinetic behaviors of calcined ceria as a function of pH.

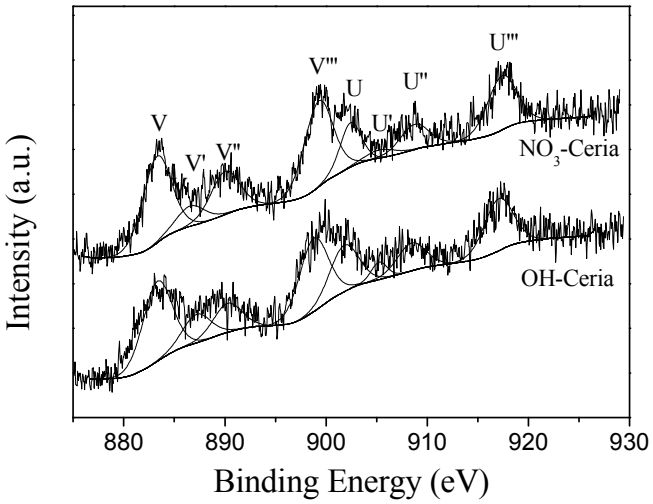

Figure S4. The XPS spectra of Ce 3d of ceria.

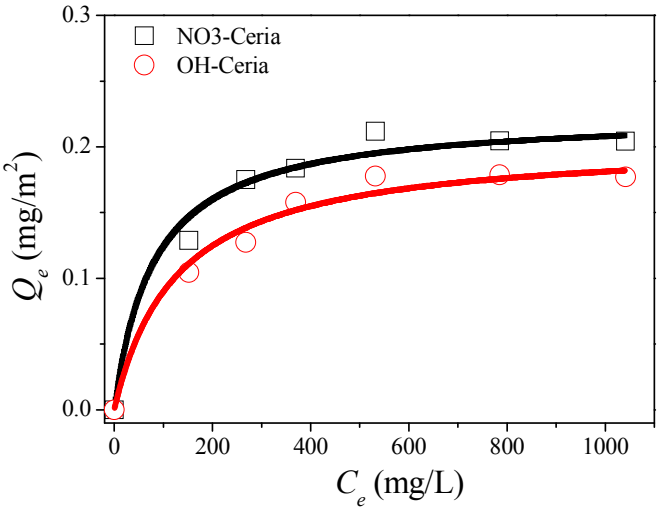

Figure S5. Langmuir plots for adsorption isotherm of PAA on ceria.

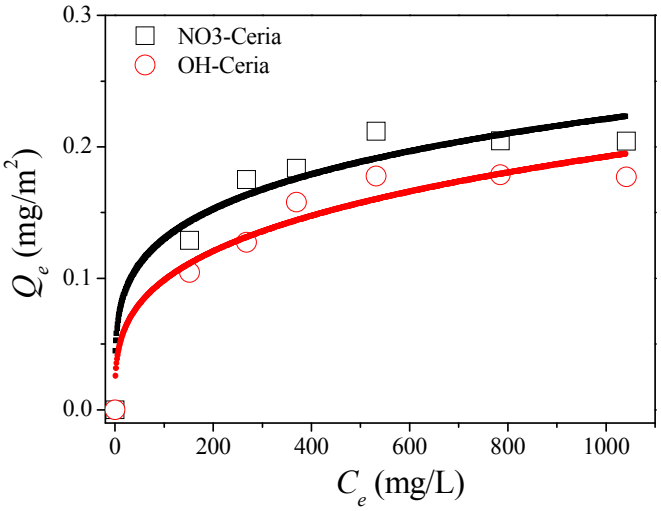

Figure S6. Freundlich plots for adsorption isotherm of PAA on ceria.

Experimental conditions	
Slurry	Ceria slurry
Solid concentration of slurry	1.0wt%
Pad	IC 1000/ Suba IV
Table speed	70rpm
Down force	4 psi
Polishing Time	60s
Flow rate	100 mL/min

Table S1. CMP conditions.

	CeO_2 (wt%)	C	H	N	S
NO_3-Ceria	99.41	0.27	0.22	0.10	N/A
OH-Ceria	98.92	0.72	0.35	N/A	N/A

Table S2. Elemental composition of ceria

	NO_3-Ceria	OH-Ceria
Ce^{3+} percent (%)	7.8 %	10.7 %
Ce^{4+} percent (%)	92.2 %	89.3 %
Ce(III)/Ce(IV) ratios	0.085	0.119

Table S3. The Ce(III)/Ce(IV) ratios of ceria.

	Langmuir constant			Freundlich constant		
	Q_m (mg/m^2)	K_L (L/mg)	R^2	K_F	n	R^2
NO_3-Ceria	0.2247	0.0123	0.9930	0.0449	4.3365	0.7838
OH-Ceria	0.2041	0.0078	0.9905	0.0258	3.4387	0.8666

Table S4. Langmuir and Freundlich constants of PAA adsorption on ceria.